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ABSTRACT

This paper contains a review of the research to date on the impact of collective bargaining in elementary and secondary education. The areas reviewed include the impact of collective bargaining on wages, salary structures, class size, resource allocations, and decision-making processes in the school systems. Other areas covered relate bargaining to the use of impasse procedures and strike activity. The issues of scope in collective bargaining and public participation are also examined, as is the impact of bargaining on teacher-student contact and teacher morale. A number of problems with the current research in these areas is discussed, including problems of definition and methodology. The final part of the paper is an indepth analysis of recommendations for the directions of future research. Research priorities are delineated, along with estimates of research feasibility in various areas. (Author)

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IMPACTS OF COLLECTIVE BARGAINING POLICY IN ELEMENTARY AND SECONDARY EDUCATION: A REVIEW OF RESEARCH AND METHODOLOGY; RECOMMENDATIONS FOR NEW RESEARCH

by
Anthony M. Cresswell,
and
Fay Spargo

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PART ONE: REVIEW OF RESEARCH AND METHODOLOGY

I. INTRODUCTION

Purpose

The purpose of this section of the project report is to review and evaluate the research related to the impacts of labor policies on elementary and secondary education. We are particularly interested in research that can help account for the way in which these policies affect schooling at the local level. Both the areas of labor policies for education and school operation are very large. In order to render them manageable within the framework of available resources, we divided the topic into two major sections and placed greater emphasis on some areas than on others. This section of the introduction describes those choices. The second section describes the general frame of reference we brought to the work.

The Labor Relations System and the School Interface

State policies for public school labor relations are created first and foremost to regulate the labor relations system in those schools. By labor relations system, we mean that collection of relationships and process that revolve about and relate directly to the negotiations of terms and conditions of employment for school workers and the administration of those terms. That policy is clearly stated in one way or another in the opening sections of virtually all the legislation and major court cases. The fair and peaceful regulation of that labor relations system is intended, as a consequence, to promote better schooling and the public interest. So the most direct and immediate impact of labor policies is first, on what we have called the labor relations system; and second, on the school operation in general. The organization and emphasis of this report reflects that distinction. We have concentrated the greater part of our efforts on analysis of the policy impacts on what we call the labor relations system, more specifically the determination of wages, working conditions, and resolution of impasses. We then consider how the labor relations system effects may be translated into the school operation.

This emphasis was necessitated also by the nature of the literature to be examined. Had we attempted to do a comprehensive review of the literature related to school operation, the task would have quickly overwhelmed us and left little time or energy for a close examination of the central labor policies. It seemed more useful to concentrate on those questions most closely tied to labor policy and to attempt a more comprehensive review there. We have not attempted a similar review of the school operation literature. We have been selective and relied on other reviews where available. We believe this

strategic choice renders the report more directly relevant to the analysis of labor policies rather than to the remaining education policies.

Frame of Reference

We considered literature from many sources and even a larger number of points of view. A basic model or understanding of policy impact processes and how they relate is necessary as means of organizing and evaluating the literature. We have constructed such a model (Figure 1 below).

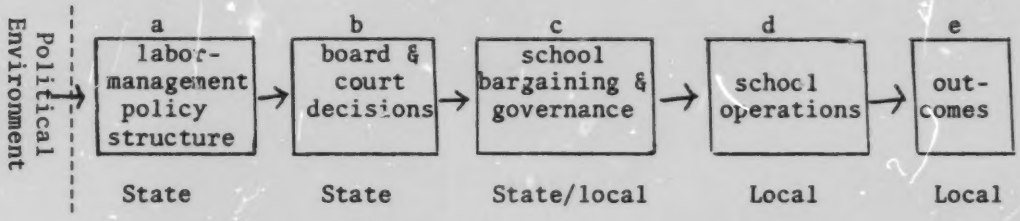

Fig. 1. Policy Impacts Flow Model

The labor-management policy structure (Box a) consists of the statutes and regulations created by the legislature and other state agencies that form the overall set of rules for the process. These statutes and regulations are then interpreted by state courts and labor boards with respect to specific cases and disputes (Box b). This body of decisions is a second element of impacts. These labor rules and decisions combine to affect the operation of bargaining and labor management relations at the local level (Box c). The output of that local bargaining and relationship (Box d) then influences the operation of schools, which, in turn, affects the outcomes (Box e).

The flow of effects is from left to right, although it is not a strictly linear or sequential process. That is, policy structures may have a direct impact on local governance without the intervention of courts or labor boards. And there are numerous possibilities for feedback effects. Several of the patterns of interaction will be described in a later section.

Policy Structure

The policy structure for public sector labor-management relations can be characterized by the level of generality of its main rules and statutes and by the number and variety of specific instances to be observed. When thought of in terms of these two dimensions, the policy structure may be arranged to resemble a pyramid (Figure 2).

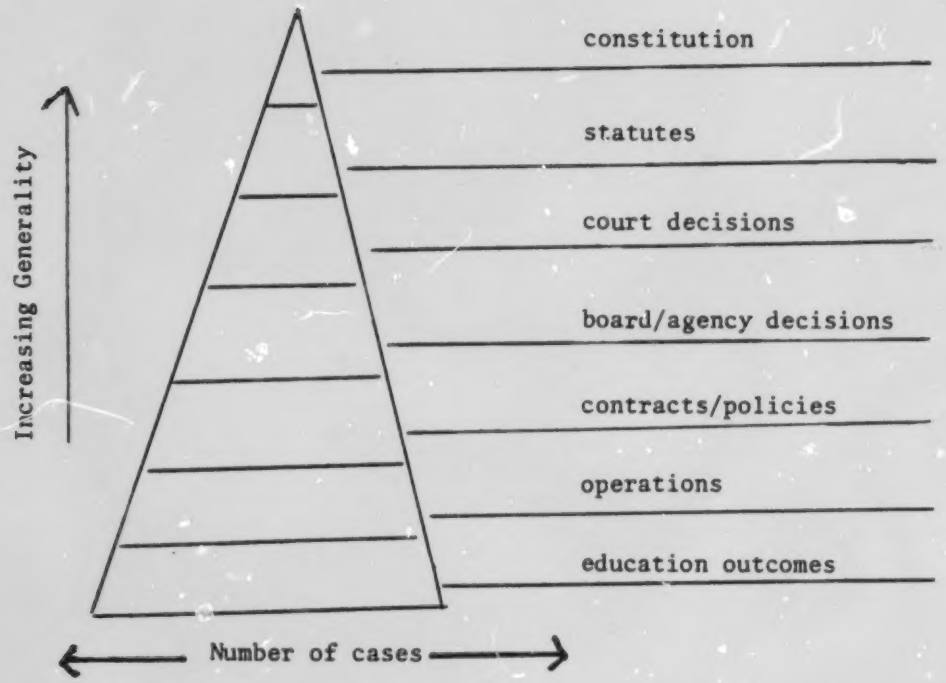

Fig. 2. Levels of Policy Structure for Labor-Management Relations

At the top of the figure are the policies with the highest level of generality and of which there are the fewest. At each level down the figure, there are larger numbers of rules or expressions of policy stated more specifically. Finally, at the bottom, there are the outcomes, which are many and highly specific, and which are less direct statements of policy, but more manifestations or consequences of the policies.

The vertical dimension on the figures represents a hierarchy of policy control as well. Policies at higher levels are supposed to control those at lower ones. That is, contracts and district policies are expected to be consistent with board and agency decisions. The decisions are to follow from court decisions and statutes, which are, in turn, subordinate to the Constitution.

It is useful, therefore, to consider a flow of effects down Figure 2. A statute should affect court decision, those decisions affect labor board actions, and so forth. At the bottom of the figure, outcomes are in some part a consequence of the flow of effects of the various policies above them in the hierarchy. However, the phenomena at any particular level are not direct or unique consequences of the policies at higher levels. Class size, for example, may be affected by a statute which allows it to be a bargaining issue, by court and board decisions further defining the statutory intent, and by a contract clause which specifies particular numbers. Along with these policy-related effects, class size is determined by a host of other factors, such as curriculum designs, physical facilities, past practices, teacher turnover, and related budget decisions. It is analytically and empirically difficult to distinguish one effect from the others. Any assessment of the policy connections across the levels requires dealing with the problem of multiple overlapping causation. These are recurring themes through the review.

II. IMPACTS ON THE LABOR RELATIONS SYSTEM

Relationships of bargaining and union activity with the financial elements of school operation have been the focus of the largest body of studies. The central question has been: What is the impact of union activity on wages?[1] Related questions of impacts on compensation, the budget, tax levels, bargaining costs and decision-making processes have been examined as well. In all, over 40 empirical works bear directly or closely on the financial links with union activity in schools. The overall financial operation of public education is so complex, however, that these studies cover only a small proportion of the full field of possible questions. There is so much variation in the research design, objectives and specification of the problem that the resulting pattern of findings is full of gaps and ambiguities. There are, nonetheless, findings worthy of note and a substantial base of methodological work on which to build an evaluation. We will begin with the wage impact studies, the largest and most methodologically consistent group. We will then examine other budget impacts, tax rates, costs of bargaining and impacts on the decision process.

Wage Impacts

Taken together, the body of evidence on wage impacts of union activity points to a small, but positive, independent effect for unionism. The estimates of the independent effect range from 0 to 30 percent when wages are measured directly, and identify a number of other influences on the wage structure, such as fewer steps in the salary schedule and smaller elementary-secondary differentials. No studies report a reliable negative effect attributable directly to union activity. However, within that range, the variation in findings merits separate consideration of differing approaches.

The methodological details of these studies are discussed in detail below. It is useful to point out here some basic consistencies among them as a framework for understanding the findings. With two exceptions (Rhemus & Wilner, 1965, and Brown, 1975), all of the studies of wage impacts are econometric estimations of the influence of one or more union activity variables in a wage determination model. The models, variables and estimation techniques vary considerably, but the basic logic remains that of assuming teacher wages to be a consequence of the interaction of supply and demand in a labor market in which the school government is the employer. The independent effect of union activity in this process is estimated by statistically accounting for the other factors which could influence either supply or demand, with the remaining influence either associated with the union variable or residual error. The magnitude of the union effect is determined by the size of the regression coefficient for the union variable (or variables).[2]

When estimated in this manner, the largest observed impacts on wages, in proportional terms, are reported by Thornton (1971) and Stiglitz (1976). Salary amounts for the maximum steps on the master's degree schedule were about 29 percent higher in the presence of bargaining in Thornton's sample of 83 large cities (1969-70).[3] Bargaining accounted for 1-4 percent increases at the B.A. base and top salary and at the M.A. base. Unionization accounted for a 30 percent increase in instruction expenditure per teacher in Stiglitz's sample of New Jersey districts (1966-67). The results for other years (1964-1970 and pooled data) range from 1 to 14 percent.

Impacts of this magnitude -- over 20 percent -- place these studies apart from the main body of work on unionization of teachers and other employees of local government. So while these are important indicators of possible large effects, their reliability must be questioned. Stiglitz's findings of 30 percent impact were for one year only, a year of apparently large rates of union growth.

Thornton's findings were for one element of the salary schedule and do not translate directly into such a large impact on the total wage bill. In addition, Stiglitz's (1976) "wage" measure is not wages, but instruction expenditures per teacher. This lumps wages with other instructional supplies and expenses, can reflect reductions in class size, and does not include contingent benefits. For these reasons, we have serious reservations about concluding large union impacts from these findings.

More consistent findings are reported with respect to impacts on base salaries (minimum salaries paid to teachers with a B.A.). Positive base salary effects in the 1 to 6 percent range are reported by Thornton (1971), Baird and Landon (1972), Lipsky and Drotning (1973), Frey (1975), and Gallagher (1978). Thornton (1971) and Baird and Landon's (1972) findings are at the high end of that range (4-6 percent and 5 percent respectively), with the others under 3 percent. Lipsky and Drotning's (1973) full sample of New York districts showed no union impacts, but they found a 2-3 percent impact for a subsample of small districts. Schemener (1973) examined base salary impacts in 11 major cities (1962-70) and found a larger impact: 12-14 percent. His methods were similar to the others and cover essentially the same time period. So these substantially higher estimates may simply reflect differential impacts in larger cities, but all the possible reasons for these differences are not clear.

There are a number of competing hypotheses for whether city/suburb/rural (or small district) differences should be observed. Monopsony power of large city or isolated small districts (Lipsky & Drotning subsample) should allow them to resist union demands for higher wages (see Landon & Baird, 1971, and Baird & Landon, 1975).[4] However, spillovers of effects from bargaining to non-bargaining districts would tend to mask union effects in highly populated areas, so stronger union effects would be expected in smaller, more geographically isolated districts such as those in Lipsky and Drotning's (1973) subsample. Neither Schemener's (1973) nor Lipsky and Drotning's (1973) results are controlled directly for monopsony effects, so there is no direct test of that hypothesis. The difference in results between the main and subsamples in Lipsky and Drotning's work suggest less importance for the monopsony effect. The same is true for the large city observations by Schemener. This is further supported by Thornton's (1975) critique of Baird and Landon (1972). There is, however, less clarity in the relative importance of spillover effects for base salary or other wage measures. Since these are general problems, they are treated in more detail in the section on methods.

At the higher levels of the salary schedules, the results suggest somewhat larger union impacts, but still in the 1-6 percent range. Gallagher (1978) reports 3.1 and 4.1 percent impacts for M.A. base and maximum salaries respectively. These are similar to Thornton's (1972) impact of 2.3 percent on M.A. minimum and Frey's (1975) finding of 1.3 percent for M.A. maximum. Lipsky and Drotning (1973) found no higher level impacts for their main sample but 2 to 4 percent impacts at higher levels of the salary schedule for the small district subsample.

These results are roughly consistent with the findings regarding impacts on the mean salary for the district, although the impacts on mean salary are generally lower. Gustman and Clement (1977), Stiglitz (1976), Freund (1974), and Lipsky and Drotning (1973) found no union impact on mean salary for all or part of the sample examined. Stiglitz failed to find statistically reliable impacts for 1964-65, 1965-66, or 1969-70, and found a 3.7 percent increase for the pooled data. Lipsky and Drotning (1973) found no impacts for the full sample and 2.4 percent for the small districts. A similar result, a 1.8 percent impact, was found by Hall and Carroll (1973). Larger impacts (12-16 percent) for mean salaries of non-teaching personnel in local government are reported by Ehrenberg and Goldstein (1975). This latter study is a major one for non-teaching personnel, and is comparable in method to the school studies, suggesting teacher union activity is less effective than non-teacher union activity in increasing mean wages. But since salary schedules, rather than averages, are the main subject of bargaining, the comparison is not necessarily valid. The Ehrenberg and Goldstein results are more

comparable to the studies of impact on individual teacher salaries.

The impact of union action on changes in wages has been examined only by Lipsky and Drotning (1973). They found that the union variable was associated with about 15 percent greater increases in wage rates at the B.A. base, and at two other typical mid-points on the salary schedule (B.S. + 30 hours, seventh step; B.A. + 60 hours, eleventh step). Since increases in wages, at least as much as absolute salary levels, are central to bargaining demands, it is curious that more attention has not been paid to this way of examining impact. Empirical problems of obtaining multi-year data and computing appropriate change measures may be some of the explanation. But these seem no more formidable than related problems solved to produce the existing studies. As it is, this estimate of impact on change stands as the only empirical estimate based on wage determination models. (Brown's (1975) study of increases at the state level is discussed separately below.)

Individual Salary Impacts

Even though the school district is the decision-making unit for salary determination and bargaining, two studies have examined union impact on teacher wages at the individual level. This approach has the advantage of allowing examination of union impacts on the education and experience levels of the individual teachers, that is, allowing estimates of union impact on these and other wage determinants, as well as lump-sum effects. Holmes (1976, 1979) found approximately 7 percent increase in gross wages associated with union activity (1976), and large differences in the increments paid according to education, experience and sex. He also found a reduction in the male-female differentials (from $610 to $436) between no and high union activity, and a similar reduction in elementary-secondary differentials (1979). He also found (1979) that the necessity of districts to compete with surrounding districts (low monopsony power) added $73 per year to the average salary in high union activity districts.

Chambers (1976) examined individual salary levels for union impact, controlling for education and experience levels. He tested for effects on class size and administrator salaries as well. His design included a regional bargaining variable, representing the proportion of school districts with bargaining in the country, as a way of accounting for spillover.[5] The presence of bargaining in a district had no independent effect on individual teacher's salaries. But the regional bargaining variable was associated with substantial impacts: 14 percent in Missouri and 8-17 percent in California. These estimates of impact are considerably larger than Holmes (1979) or the

previously cited studies of district aggregates. It is not clear how much of this larger estimate is a consequence of the regional bargaining variable, absent in the other studies, or of the use of the individual teacher as unit of observation. Chambers' design takes into account education and experience levels. We have seen from other studies of impacts on salary structure that union activity appears to favor teachers at higher salary schedule levels. Perhaps this interaction tends to mask the independent effect of union activity. If the masking elements are controlled, the effect of union activity may appear larger. None of the designs reviewed appear to provide a basis for testing that notion. But it will be taken up in more detail in the following section on methodology.

Salary Structure Impacts

Salary structure, as represented by the relationships among the wages paid to different classes or groups of employees, is another area of interest for possible union impacts. Some aspect of salary structure has been examined in four studies, with evidence of generally greater impacts than observed for wage levels alone. Moore (1976) found that bargaining tends to reduce differential between elementary and secondary teacher salaries by 6 percent at the district level. Gustman and Segal (1977) found that bargaining was associated with a reduction in the number of steps to reach the maximum salary (-1½ for B.A. and -2½ for M.A. ranks), and an increase of 14 percent in the range between B.A. and M.A. salary levels. In examining individual salaries, not district aggregates, Holmes (1979) reports that union activity increases the premium paid for advanced education by a ratio of 2:1 and for added experience, 9:1. Taken together, these results suggest that the main union effect on salary schedule structure is to increase the premium, or increment, for movement on the schedule and to reduce the number of movements needed to reach maximum levels. These are certainly plausible union objectives and the evidence of success suggests this is a significant area of wage-related effort and impact.

In addition to structuring the relationships among different groups of teachers, the salary schedule establishes relationships between teachers' present and future salaries. As teachers gain experience and advanced education, they move to higher salaries as set in the schedule. Thus, negotiated changes in the schedule produce current impacts plus changes in expectations for future income streams. Any increase in the schedule should, therefore, be viewed as an increment to the future earnings of teachers below that point on the schedule. The present value of that future income can thus be calculated by assuming some future status for teachers along with a reasonable discount rate. Gustman and Segal (1979) used this approach to estimate salary impacts for a sample of 93 central city districts. Under varying assumptions

about the employment plans of teachers they found union impact estimates of 0 to 5.9 percent, the largest for a typical teacher with five years of experience planning to work five more years. The effects for more experienced teachers (13 years) were zero except for reducing the M.A. range, which was affected 4.8 percent by the union variable. This does not take into account how future changes might modify the expected value of these schedule changes, e.g., a big gain in one part of the schedule one year may be balanced by a different change in future bargains. The modification of future income streams is another plausible aim of union activity and the evidence of impact in this design is convincing.

State Level Impacts

Impacts of state policy on the conduct of bargaining and its outcomes can be assessed either by using the state as the unit of observation and analysis, or by entering values for state variables into a sample of districts (or presumably individual teachers) drawn from a number of different states. Examples of both approaches are available. In their study of state teacher retirement systems (1977) and in their study of salary impacts (1979) Gustman and Segal used a variable representing the state labor law context developed by Kochan (1973). They found that the variable representing the comprehensiveness of the law was associated with a statistically significant impact on the base salary of approximately $30. This is of the same order of magnitude of the impact of the presence of a comprehensive negotiated agreement (about $48). The law variable had no apparent association with other measures of wage impact. The same legal variable was associated with a small but significant decrease in teacher contributions to pension systems, but was unrelated to pension amounts. These results suggest the more comprehensive the law, and thus presumably the more structured and regulated the labor relations process, the greater benefits to teachers, by a small margin. More comprehensive laws also tend to be associated with some of the same factors which go along with greater union activity and demand for public services (Kochan, 1973). So the direction of causality is unclear; salaries and more comprehensive laws may both be products of contextual or historical factors. Nonetheless, this evidence does point to potentially useful ways to assess policy impacts.

In a more direct attempt to assess policy impacts, Cresswell et al. (1978) used indexes of both labor and finance laws in a study of state-level impacts of bargaining on wages and resource allocation.[6] They extended the wage determination model approach to include determinants of budget and class size. A three-equation model was then estimated for the independent effects of

bargaining, other decisions and policy context on state average salaries. Neither the index of labor law characteristics nor the level of union activity were associated with positive salary impacts. In fact, a counter-intuitive result occurred: the index of labor law, designed to reflect the degree to which the law favors union activity, was associated with small negative impact on average salary. The same variable was associated with a small but positive impact on total budget. These findings were consistent across three formulations of the wage determination model. The size and statistical reliability of these results are small and so must be viewed cautiously. One interpretation consistent with conventional theory is that the political dynamics which produce labor laws favorable to employees also lead to salaries lower than would be expected given the income and preferences of the state and the level of the opportunity wage. That is, politically active teacher groups, able to produce favorable laws, may go along with active management able to resist bargaining demands. Other problems may arise in the aggregation of data to the state level.

This problem has been proposed as the reason for weak or no impact findings in two other studies of state-level impacts. Neither Kasper (1970) nor Balfour (1974) found bargaining associated with appreciable positive impacts on state average wages. Kasper (1970) found bargaining levels led to a 4 percent increase in the salary averaged over two years (1966-67). He also examined the impact on the ratio of teacher-to-police salaries and found no union effect. Given the problems of aggregation bias and the small impacts observed in other studies, these low findings are not surprising (for a discussion of Kasper's work, see Lipsky & Drotning, 1973, and for Balfour, see Moore, 1975).

Non-controlled Studies

In an attempt to assess the impact of bargaining laws on salary for teachers, Brown (1975) compared states' average wages in states with and without bargaining laws. The comparisons were done absent statistical or design controls for factors other than bargaining and lack of a specified wage determination model. Thus, while the size of effect observed (3.2 percent) is in the same range of other studies, it cannot be considered reliable. Similarly, Rhemus and Wilner (1965) compared the first two years of experience under Michigan's new labor law. This study lacks the same controls mentioned above and its conclusion that bargaining produced increases three times higher than non-bargaining situations is suspect.

Wage Impacts: Summary

The bulk of evidence on the question of union impacts on wage points to the conclusion that unions do have a positive and fairly consistent impact on wage levels, structure, and the overall wage bill. The size of the impact is estimated at up to 30 percent, but with the largest number of findings between 1 and 8 percent. The effects appear largest when individual teacher wages are analyzed, less so when aggregated to the district level, and small or unmeasurable at the state level. The main effects on salary structure are to increase differentials for education and experience, and decrease them for sex and teaching level differences. The magnitude of the effect recorded seems to be quite sensitive to the time period chosen, the specification of the variables and the design of the analysis. This is so even though the basic theoretical and analytical bases for the studies (with few exceptions) follow from economic theory of wage determination.

The presence of measurable impacts is clear; it is also clear that the evidence does not support contentions that union activity has produced a major reallocation of resources in education. Too little attention has been paid to the place of state labor policies in this basic research question. What evidence there is does not point unequivocally toward a clear policy impact. The presence and comprehensiveness of legal structures do seem to have some small positive impact on wages, but there is some small contrary evidence. Overall, the available information on the policy linkages with wages is too sketchy to support conclusions of major proportions.

Class Size Impacts

Unions bargain for more than wages; they are concerned with work load and conditions, among other things. In teaching, class size is a central element of both load and working conditions. It is necessary to ask whether union activity affects class size and whether tradeoffs with salary or other benefits are suggested by the evidence. Basic theory would suggest that negotiated increases in teacher wages (higher prices) would result in lower demand, i.e., larger classes and fewer teachers. In other words, a disemployment effect should be observed. This is in fact observed by Thornton (1971) to some degree, by Hall and Carroll (1973), and by Chambers (1975). Hall and Carroll estimate that the observed increase in salary due to bargaining in their sample resulted in an increase by one pupil in the average class size. Chambers' results in California were in the same direction, increased class sizes, about +1½ per class in high school, but in the opposite direction for elementary pupils.

Chambers speculates that this may reflect employers' notions that larger class size is more deleterious at the elementary level. For Missouri, however, the results (Chambers, 1977). were opposite. Teachers appear to give up salaries to teach in districts with larger classes and more instruction supplies (p. 11). This appears to be due to the greater attractiveness of positions in metropolitan areas, but that conclusion is not fully evident in the data. Cresswell et al. (1978) examined class size in basically the same analytical approach as Chambers, but with state data. Their results show no relationships between salary impacts and class size. Thornton found a number of wage level measures in which increases were associated with a disemployment effect (increased class size) for 1958-59 data, but not for 1969-70. None of the 1969-70 effects of class size were significant. The same is true for the measure of excess demand (proportion of teachers with substandard certification). The lack of disemployment effect for the 1969-70 data (all for large cities) may be a consequence of enrollment growth pressures which were still being felt during those years, producing an inelastic demand. (This speculation is not fully supported by demand studies over roughly the same time period; see Frey, 1975, and Stiglitz, 1976).

Unfortunately, the most recent study involving class size is based on 1974-75 data, a period before major declines in enrollment and resulting teacher surpluses were experienced in many states. These changes in demographics would be expected to affect the elasticity of demand for teachers to some degree, and disemployment effects would be more likely. Examination of this question awaits study.

Tax and Expenditure Effects

Wages and related compensation expenditures are just part, albeit the major part, of the school budget. It is reasonable to expect, therefore, that union activity that affects wage and compensation decisions may produce other effects on resource allocation and budget behavior as well. Central to this matter is how changes in the budget are related to teacher salaries. Moynihan's (1972) speculation was that increases in education expenditure, especially those associated with finance equalizing efforts, would simply result in windfall salary increases for teachers and not changes in education opportunity. Kirst (1975) found in a sample of California districts that teacher expenditure increases were roughly proportional to overall budget increases in low wealth school systems. Alexander (1974) and Barro and Carroll (1975) show that expenditure per pupil for teachers increases at about one-fourth the rate of increase of overall expenditures, while teacher-pupil ratios increase at about one-half the rate of expenditure growth.

Chambers' (1976) estimate was even smaller, with a teacher salary elasticity, with respect to the district budget, of about 17 percent (i.e., each one dollar increase in the budget results in a $.17 increase in salaries).

Interpretation of these elasticities is not straightforward. There is, of course, a high degree of multicollinearity between budget levels and wage rates. There is strong behavioral and theoretical reason to suspect simultaneity in their determination (see below). It is possible to conclude that the evidence does not support a hypothesis of disproportionate teacher gain. But beyond that, the water is a bit muddy.

Connections between union activity and other aspects of financial decision making have received relatively little attention. The most comprehensive quantitative study was Gallagher's (1979) study of Illinois school district budget and tax decisions. He found a substantial interaction between wealth levels and the response of school districts to the pressure of union wage demands. High wealth districts appear to finance salary increases out of tax increases, with little disturbance of basic budget patterns. Low wealth districts, by contrast, appear to finance salary increases to some degree out of reallocations within the budget. The relationship between collective bargaining activity and total expenditure per pupil was strongest in the high and medium wealth districts. There was also evidence that in the high wealth districts there was an "internal spillover effect" (p. 81) such that higher compensation expenditures go hand-in-hand with higher non-compensation expenditures, such as instruction supplies.[7]

In a more general but related study, Straussman and Rogers (1979) examined the impact of public sector unionism on state tax burdens. Unionism was represented by the comprehensiveness of the statute, amount of strike activity, and public sector earnings. Militancy and statutory characteristics were unrelated to tax burden, while earnings had a positive, but small contribution to higher tax burden. Moreover, earnings were strongly affected by non-union variables (when examined in a path-analytical model). The ability of unions to pressure local or state government into higher tax rates is, as these studies indicate, quite limited. It is conditioned by the tax leeway and the other elements of the economic context.

Costs of Bargaining

Aside from affecting wages, taxes and budget decisions, bargaining and related union activity impose certain costs on the school system. Kerchner (1979) calls these "process costs" and divides them into direct costs, funds expended in bargaining or contract administration; implied costs, use of existing

resources such as personnel time; and opportunity costs, the value of activity foregone when engaged in labor-management relations (p.41). He documents three districts in California where the total one-year costs ranged from $64,750 ($9.25 per pupil) to $99,150 ($12.39 per pupil). About two-thirds of the total was indirect costs. Opportunity costs were not quantified, but a number of organizational changes and foregone actions were listed. There is no indication of how representative these costs are of the state or other states' experience.

A more national perspective is found in Cresswell and Murphy (1980). They use data from a national survey of bargaining and labor management activity as reported by administrators. From these data, they estimate approximately $14 per pupil as the average cost of maintaining the labor-management relationships in bargaining districts. That is a total of $630 million for 1975-1976. These are, of course, very rough estimates, based on assumptions of administrative costs, and unclear definitions of the scope of activities included as labor-management relations. Nonetheless, the implication is that direct costs are substantial.

Decision-Making Impacts

An understanding of the behavioral interactions between budgetmakers and negotiators is a central element in the question of bargaining impacts on school finances. There is a small but growing body of evidence on how these processes interact. Perry and Wildman (1971) conducted detailed studies of organizational and political impacts in 24 school systems in 1956 and 1966. Perry (1979) followed up and re-examined labor-management relationships in nine of these school districts in 1977-78, with special attention to the effects of financial stringency that had emerged since the initial study. The main financial-related results of bargaining observed over the time period were modest increases in wage rates (consistent with the above discussion), more substantial increases in fringe benefits (as much as $1,200 per teacher), growth in the limits and structuring of work time (school day and year), and the acceptance of class size as a legitimate working condition issue. There has been a considerable growth in rights bargaining over teacher participation in decision-making and professional autonomy.

These results are discussed in terms of the relative lack of political or institutional constraints for bargaining. The only effective discipline for management in resisting union demands was the imminence of financial crisis. Absent tight fiscal constraints, there appear to be no effective constraints on the impacts of bargaining on the school decision-making process. In the earlier study, management was willing to accept budget reallocation or deficit financing to accommodate wage demands. Management seems to have maintained that posture, modified by concern for short-run fiscal crises that impose limits or cuts from external sources. This was particularly true for urban and suburban districts, with the rural systems continuing to enjoy relatively loose fiscal reins.

More detailed descriptions of the budget-bargaining interactions are provided by Derber and Wagner (1979) and Cresswell et al. (1979). Both studies involve behavioral treatment of the bargaining and budget-making processes in local government. Derber and Wagner (1979) is a follow-up in 27 local (Illinois) governments of an earlier project (Derber et al., 1973). They asked behavioral questions of local officials concerning the conduct of bargaining and budgeting. Cresswell et al. followed a similar approach with a sample of nine school districts (also in Illinois). Derber and Wagner analyze the responses according to "tight," "favorable," and "mixed" fiscal conditions; Cresswell et al. describe in terms of the characteristics of the budget process. In spite of these analytical differences, the results are remarkably similar. Both report a high level of coordination between budget making and negotiations, with overlap of personnel, substantial communications and continuing adjustments. The approach of management to bargaining was conditioned in both cases by their assumptions about the fiscal context, whether loose or tight. Cresswell et al found that this perspective was not necessarily related to the objective state of the fiscal environment, but more to the decision makers' subjective impressions. The timing of the two processes was also crucial. Both report that in some cases the budget process controlled the eventual decision by setting constraints; in other cases, the bargaining process determined wage levels; and in others, the processes were roughly simultaneous. Derber and Wagner attribute this to the tight versus loose fiscal assumptions, whereas Cresswell et al. attribute it more to the bargaining power of the union. But in either case, the sequence of decision making is a critical component of the interaction mechanism.

These behavioral findings show that the penetration of bargaining influences in the overall financial decisions of the school system is operationalized through overlap of participants, sequencing of dependent decisions and constraints operating through largely political or crisis mechanisms. That is, the

constraint or limit imposed is a financial one. The mechanism of its imposition, however, is not a rational economic decision, but a political crisis imposed either by external actors (e.g., municipal government) or the generation of high levels of internal conflict in the system.

This can be interpreted as support for the concept of a political market constraint, analogous to the product market constraint for the private sector wage theory. That is, if the political system can produce crises which effectively constrain bargaining decisions by imposing prior budget decisions that cannot be reversed, this is an effective, if sporadic, limit to union power. This argues against the overall contention that unions grossly distort the political process (Wellington & Winter, 1970). But it leaves open the question of how effective these constraints on union power are, and how they are related to the legal and policy context of bargaining.

III. METHODS OF WAGE IMPACT STUDIES

The diversity of approaches to variable specification and analysis in these studies presents a problem for making methodological comments and critiques. To deal with this problem we have grouped the methodological issues into four major categories that are relevant for this type of study, but not necessarily useful for others. They are: (1) wage measurement, (2) union measurement, (3) policy measurement and (4) modeling and control techniques. Specification of the dependent measure (wages) is, of course, crucial as is the treatment of the two main variables whose effect is of interest: union activity and policy. The remaining issues revolve around the specification of models which are both adequate representation of the phenomenon and provide adequate controls for estimating the independent effects of the union and policy variables.

Impact Measurement - Wages

Wages have been the central focus of attention as the point of impact. The magnitude of the estimated impact does seem to depend in part on the way the wage or compensation variable is specified. Indications of union impact were smallest when the measure was a state average (Balfour, 1974; Cresswell et al., 1978; Gustman & Clement, 1977; and Kasper, 1970). Measures of impact on individual teacher wages (Chambers, 1975; Holmes, 1979) are the most consistently high. The most variability is found in results using the district average or specific wage levels in salary schedules (Baird & Landon, 1972; Chambers, 1977; Freund, 1974; Frey, 1975; Gallagher, 1979; Gustman & Clement, 1977; Hall & Carroll, 1973;

Lipsky & Drotning, 1973; Schemener, 1977; Stiglitz, 1976; Thornton, 1971). Estimates of impact on the salary structure show strong and consistent values (Gustman & Segal, 1977; Holmes, 1979; Moore, 1976), as do the measures of change (Lipsky & Drotning, 1973) and fringe benefits (Gustman & Segal, 1977; Gallagher, 1979).

The central problem with existing wage measures is that none is comprehensive. Thus, this level of variability is to be expected. Bargaining and related union activity involve a wide range of direct and indirect compensation to teachers (and other employees). These include salary, contingent benefits, leave, work load concessions, expectations of future benefits, professional and personal prequisites, etc. There is no reason to believe a priori that in any district or collection of districts there will be a high correlation among the levels or changes in these elements of compensation. That is, particular levels and changes will reflect historical patterns and tradeoffs in the individual decision units. In short, it is not proper to think of these as substitutable measures of compensation. Therefore, picking any set or subset of the possible measures of compensation in an ad hoc manner, as is characteristic of these studies, should be expected to give unstable results, irrespective of whatever other factors may be contributing to variation.

Some approaches are more comprehensive than others. Stiglitz's (1976) measure of instruction expenditure per teacher will pick up salary, leave use, and some professional prequisites and work load factors. But it misses many fringe benefits, decision participation, and future benefits, as well as changes in the salary structure. Gross wages or district averages have the same problem. Specific measures of fringe benefits, such as Gustman and Segal (1977), may show direct effects, but the choice of one benefit among many alternatives is arbitrary and may result in distorting the overall effect. Furthermore, the direction of the distortion is not clear. If tradeoffs are occurring, changes in one factor could either over - or understate union effects; if there are internal spillovers, one measure may represent the others.

The same problem of arbitrary choice plagues the salary schedule studies. No firm rationale is presented for the specific levels chosen, except for the questionable assumption that districts recruit at the B.A. base and, therefore, that amount is reflective of labor market forces. Even if that assumption is correct, the internal labor market in districts may be more important in bargaining and wage determination terms, especially in periods of stability or decline (see, for example, Owen, 1972). Certainly the distribution of teachers across cells of a schedule affects the importance of changes therein, a factor ignored in all these district-level studies.

Leave policy is a particular form of compensation which has been essentially ignored. It is of direct value to teachers and is a direct cost to school districts, but is not directly included in any study of financial impacts. It has been shown (Winkler, 1980) that the characteristics of policy--in contract or elsewhere--do affect absenteeism. But the connection with union activity remains unexplored.

Impacts on class size are closely related to wage and compensation effects, since class size strongly affects the overall budget and is an indicator of elasticity of demand for teachers and possible disemployment effects. Those studies that examined class size impacts used pupil/teacher (or teacher/pupil) ratios, not direct measures of class size (Chambers, 1975, 1977; Cresswell et al., 1978; Hall & Carroll, 1973; Thornton, 1971). This measure does not reflect the number of large and small classes, the distribution of work load, or the effect of minimum or maximum classes. Teacher/pupil ratios will reflect elasticity of demand, but not the work load or contract provisions actually negotiated.

The problems of estimating effects on other aspects of the budget remain largely unsolved. Part of the problem is that of the interaction between budget and bargaining activities which is discussed in the section on modeling below. Gallagher (1979) is the only study that statistically examines the impacts of bargaining on both budget levels and allocation patterns. This study reveals provocative results but the conclusions are not solidly based. The evidence for internal reallocations in low wealth districts is quite weak, perhaps reflecting the stability found by Kirst (1975). Moreover, the budget category data were expressed in dollars per pupil, rather than proportions of the budget thus perhaps making elements of a redistribution effect. Similarly, this design suffers from a cross-sectional bias, a particular problem when basic budget allocations are stable and cross-year tradeoffs are a distinct possibility (if not a demonstrated fact). Gallagher's (1979) study suffers from modeling problems discussed below.

Gallagher's (1979) evidence (from 1973-74) and Chambers' (1977, 1974-75 data) extend the examination of bargaining effects on budget levels beyond the late 1960s and early 1970s of the other studies. These studies continue to show a positive impact of bargaining on overall budget levels.

Measure of Union Activity

Overall, 12 distinguishable variations in measuring union activity were used in various combinations in these studies. There appears to be no theoretical reason for preferring one combination to others or any apparent pattern of results associated with any particular measure. In short, the choices of variables seem to be essentially ad hoc. This is fortunate from the reviewer's point of view, since it provides us with an overview of many different approaches and allows us to observe that the variety seems not to lead to any major consequence.

As with wage measure, the problem is lack of comprehensiveness. Union activity is reflected in bargaining (of various levels of intensity), characteristics of the contract, incidence of strikes, levels of representation, affiliation and presence or absence of bargaining laws. As with the wages, these cannot be generally taken to be substitutable measures. The presence of a contract and the presence of formal bargaining come the closest to being equivalent, the presence of a union less so, but still plausible. Beyond those, there is no a priori reason to expect substantial correlations. Comprehensiveness of the contract is not necessarily related to percent of teachers in the union, especially since the contract is an historical collection of bargains. Membership has annual fluctuations. The incidence of a strike has no a priori relationship with formal or informal bargaining, since many strikes have occurred over recognition. Affiliation with one or another national organization (NEA or AFT) should not in itself be tied to particular types of contracts or levels of representation.

Therefore, a composite measure of union activity is necessary to pick up variations and facets of the overall picture. None of the studies here employed such a comprehensive measure. Gustman and Clement (1977), Kasper (1970), and Schemener (1973) each used three (different) measures of union activity. Schemener's comes closest to comprehensiveness, using presence of bargaining (yes/no), percent of teachers represented and previous strike activity. This does not take into account, however, differing levels of bargaining or varying levels of comprehensiveness of the contract.

Union activity varies in intensity over time and the relative power of the union varies from place to place and from time to time in districts. A measure of union activity

should reflect these nuances, but none does individually. Moreover, absolute salary levels and structure of the salary schedule are consequences of previous, as well as current, bargains. Thus, current wages certainly include impacts of the district's history of union activity. Only Gallagher's (1978) study took into account some aspect of the historical nature of the effects directly. He used length of the bargaining relationship (1-3, 4-6, 7-10 years) as a variable. The longest time variable was significant in its impact on all six levels of the salary schedule which he examined. The 4-6 year variable impacted on the M.A. scales, while the short time variable showed no impact. This suggests that the historical nature of salary levels is an important consideration and length of the union activity should be considered.

The temporal dimension of union activity is a design and measurement issue in another way. The pre-bargaining history of a district may give rise both to bargaining and to salary variation. Thus, what is inferred as a bargaining impact is influenced by pre-bargaining salary raises. The onset of bargaining may be motivated by relatively low salaries in the past. So, a comparison of contemporary district salary levels will understate the impact of bargaining. Thus, a full assessment of union strength should include some attention to pre-bargaining patterns of salary. This was part of the design in the studies of Chambers (1975), Thornton (1971), and Frey (1975). They each used the unionism variable(s) in an analysis of pre-bargaining data, reasoning that if unionism was associated with some pre-bargaining characteristic of the districts, the unionism variable would have a significant regression coefficient on pre-bargaining data. All three found some evidence of this sort of effect, but not in the same direction. Thornton (1971) found evidence of higher pre-bargaining salaries associated with unionism. Chambers (1975) findings were in the opposite direction. The answer to this apparent anomaly is suggested by Frey's (1975) finding that before bargaining, districts that would eventually have unions were more sensitive to labor market factors. Thus the direction of pre-bargaining bias may be the result of interactions with local labor markets as well as internal characteristics of the school system.

The problem of taking into account pre-bargaining conditions and temporal effects was addressed in Inchniowski's (1980) study of firefighter wage determination. He found consistent union effects (up to 3.4 percent) using a more sophisticated model to take into account the impact of pre-existing characteristics on the union effects. The results from this approach suggest that the economic environment and the length of the contractual relationship are important for this employment group. The approach is appropriate for studies of teachers but has not, to our knowledge, been so used.

Union effects in one district may also be affected by union activity in the surrounding area (the so-called spill-over effect). Thus, even a non-bargaining district may experience union-caused wage increases because they are, in Lipsky and Drotning's (1973) terms, within the "orbit of coercive comparison" of unionized districts (p. 441). The union effect observed in any district influenced by spillovers would thus be understated. Lipsky and Drotning found evidence of this effect by analysis of a subsample of small, relatively isolated districts with less chance of spillover in which the union effects were stronger. Chambers (1975) used a variable for prevalence of bargaining in the region and observed stronger union impacts. Chambers also found evidence of spillover across occupations where, for example, administrators benefited (about 4-12 percent) from union activity of teachers. Ehrenberg and Goldstein's (1975) study of municipal employees showed comparable effects between non-education employees and between city and suburb.

Measurement of Policy

The measurement of the policy characteristics of the bargaining context seems to be the most neglected element of these studies. Only the studies by Cresswell et al. (1978), Brown, (1975), Gustman and Segal (1977) and Freund's (1974) study of municipal employees looked for policy-wage interactions. None of them found significant relationships between wage gains and the policy context, except for the uncontrolled Brown (1975) study. It seems implausible that the policy is inconsequential. The lack of findings are probably measurement or design problems. Both Cresswell et al. and Gustman and Segal used indexes of the legal environment, the former developed to reflect the support in the law for union activity, the latter to reflect comprehensiveness (developed by Kochan, 1973). The indexes are the sums of weights assigned to each section of the code according to its specific characteristics. There are several problems with indexes of this type: (1) the weights can be arbitrary and a source of bias, (2) the method assumes comparability of legal language across states, (3) the process of summing disparate features of the law is suspect and (4) no provision is made for actual enforcement of the law or the effectiveness of individual sections. In spite of these problems, however, indexing of some sort offers a better approach to measurement than simple dichotomous variables which miss the complexity and nuances of the legal variation among the states. Unfortunately, little is known about how these complexities and nuances affect the conduct of bargaining at the local level. Consequently, there is no basis for any particular set of weights or indexing schemes, except to say that the current ones seem inadequate. (The same problem exists in assessment of policy impact in other operational areas.)

It would be helpful in this regard to have a comprehensive survey of court cases, administrative practices and labor board decisions according to their potential for impact at the local level. The results of this survey could then be compared in some empirical way to operating characteristics of schools and to the conduct of the labor-management relations. No such survey exists.

Models and Controls

Some of the problems of model specification and controls have been discussed above in the context of specific measurement issues. The remainder affect the overall design of research to assess policy impacts. The basic design problem is generic to policy impact or wage determination research: how to determine the independent effects of unionism and policy. That requires a model which takes into account the other variables that may produce impacts, and does so in a way that recognizes the possibility for interactions among variables and reflects the underlying dynamics of the decision-making process. None of the studies reviewed above is "complete" in the sense that it takes into account all the possible controls and interactions. There is not a model against which to compare the remaining work. Below, we will discuss each of the major design issues, how it has been treated and what alternative approaches might be used.

Simultaneity

If unions and labor policies affect wages the impact must occur in large part through budget making and bargaining. Other avenues of impact exist such as changes in expenditure on wages as a result of teacher use of leave provisions or direct costs of bargaining. But these are not considered major or consequential parts of the school resource picture. Decisions on wages and related benefits, numbers of teachers and budgets are the center of the impact process. Recent evidence provided by Perry (1979), Derber and Wagner (1979), and Cresswell et al. (1978) shows that bargaining and budget making are intimately related. These findings are consistent with behavioral studies in other sectors of government (see, for example, Danziger, 1978) and older studies of education decision making (see, for example, James, Kelly, & Garms, 1966).

This poses a serious problem for wage determination models. The classic approach is to model wages as a function of both supply and demand. A reduced form equation for the equilibrium wage is formulated, with budget as a constraint or element in the demand vector. These models are recursive and are based on assumptions of negligible feedback between class size, budget and wage decisions. These assumptions are not consistent with the

behavioral evidence. A recursive model used to estimate a system with feedback may lead to biased results, calling into question the reliability and validity of the studies so conducted (see Perry, 1976, for a discussion of this problem). They may, in fact, have understated the importance of the union effect. However, when the results of alternative approaches are compared, the magnitude of possible bias is not clear.

Only two studies attempted to estimate the effects taking into account the simultaneity of decisions. Cresswell et al. (1978) formulated a three-equation model in which interaction of effects among budget, wages and class size were incorporated. The three-equation model results were compared to analyses of the same data with the standard reduced form equation and with a two-equation system of budget and wage equations. The approaches produced somewhat different results, but did not indicate a clear direction of bias resulting from the reduced form equations. Hall and Carroll (1973) estimated both the reduced form and a two-equation system for class size and wages. They found the latter to be a better fit with the data and produced definite indications of feedback between the two decisions. They considered the overall budget amount a constraint. Although these studies are not conclusive, the indications are that the neglect of simultaneity among these decision processes is a serious risk in wage determination models or studies of union/policy impacts.

Two other possibilities for feedback were examined by Kasper (1970) and Chambers (1975). They examined the possibility that wage levels were possible determinants of union activity, as well as vice-versa. Chambers found no evidence of this effect. Kasper's work was not a direct attempt to provide for this feedback but a more general attempt to employ a union variable which was more free of confusion by multicollinearity with a number of local demand characteristics. Thus, he used a regression-based estimate of teacher organizational strength as the variable in the wage model with better predictive results than direct measures. This can be taken as indication of feedback between demand and union activity variables.

Monopsony

The degree to which a school district has to compete with alternative employers for a teacher's services should be related to the bargaining power and thus, impacts of unions. This was taken into account in some of this research in the form of a variable representing the monopsony power of school districts in the degree to which they are price setters rather than price takers in the local labor market. The greater the

monopsony power of the school district the lower should be the impact of the unions on wage levels. This is what Baird and Landon (1972) proposed and found. Thornton (1975) took sharp exception to their findings and reported a similar analysis with no significant monopsony effects on wage levels. Landon and Baird (1975) disagreed with Thornton's formulation of the problem and his particular monopsony variable.

As that apparent standoff might reflect, the interpretation and importance of monopsony in local government labor relations remains controversial. Lipsky and Drotning's (1973) design included an examination of a subsample of isolated, smaller school districts, ones in which monopsony power would presumably be greater. But in this subsample, the union effects were higher, a result the authors attribute to the absence of spillovers that otherwise masked union impacts.

Some variable representing monopsony, either size of governmental unit or number of competing government employers, has been included in most of the works cited. The results are mixed, although on balance, monopsony power does seem to be an important variable in a wage determination model and have the expected relationship with union effects, i.e., depresses them. The central problem with including the variable in the design is proper specification. The precise nature and boundaries of the local labor market are not known, so the boundaries of competition are unknown as well. Evidence on the bargaining behavior (e.g., Gerwin, 1977; Perry, 1979) suggests that school districts do not compete directly with all others in their region, but rather with a particular reference group. This is not reflected in the choice of monopsony variables included in any of these studies. As a result, it seems well justified to include some sort of index of labor market competitiveness in a wage determination model but there is little agreement on how that variable is to be expressed.

Opportunity or Alternative Wages

Another element in the local labor market is the level of wages paid by competitive employment. By taking a teaching job the worker forgoes alternative employment. The supply of teachers available at a given salary should be affected by the wage scales in alternative jobs reflected in prevailing wages in the same labor market. This has been a variable of major importance in several of the studies reported. The evidence is strong that the prevailing wages are key determiners of teaching and other local government wages.

Part of the problem in teacher wages studies, however, is specifying the appropriate alternative employment. Some employment requiring substantial education and state credentials seems a reasonable choice, such as nursing or social work (Cresswell et al., 1978). Some studies have used police wages (Kasper, 1970) and the manufacturing wage (Schemener, 1973). Our preference would be for the professional or certificated wage group, both on theoretical grounds--most similar to the teaching force--and on empirical grounds--high predictive power in existing studies (Gustman & Clement, 1977; Cresswell et al., 1978).

Budget Impacts

We have seen some evidence that bargaining has some effect on budget decisions beyond the wage setting process (Gallagher, 1978). A central analytical problem in assessing these impacts, either of unions or of labor policies, is the lack of adequate models of budget determination. There is substantial literature on the determinants of the overall spending level (see, for example, Alexander, 1974) but there has been little work on models to account for allocations within budgets. Barro and Carroll's (1975) work is helpful. It takes a constrained maximization approach and attempts to account for allocations among budget categories. The results are instructive but do not include direct attention to union activity or policy variables. They do not deal with the sources or operational variations in the constraints which are central to the model. Nonetheless, the work is a useful start in the process of specific models of budget determination for school systems. It could serve as the basis for extending the union impact question to this level of operation.

Studies of Financial Impacts - Summary

The basic theory of wage determination in the public sector seems to fall into two distinct areas: (1) econometric wage determination models, and (2) process or behavioral models. For the latter, the basic approach and methodological assumptions are the subject of fairly wide agreement. The main disputes and issues are more of specific applications, model refinements and the importance of particular variables. Thus, there is considerable overall consistence in methods among many of these studies, even though the empirical results are often widely variant. The most serious conceptual and analytical problems seem to come at the interface between the first and second type of model. As Perry (1976) puts it: "Probably the most fundamental methodological issue relates to developing structural (causal) models rather than reduced

(explanatory or predictive) models for policy analysis" (p. 42). There seems to be little consensus and a concomitant paucity of theoretical work on the basic questions of causal models and behavioral processes for wage determination and union financial impact questions. In the absence of a solid theoretical and empirical foundation the development of more accurate models is hindered. The basic analytical questions of feedback and simultaneity among decisions cannot be answered clearly. Without answers here, the models used to date all stand subject to serious criticism and possible error.

Aside from this fundamental issue, there are several more technical matters about which more definitive statements can be made. It seems clear that an adequate study of union and policy impacts on wages and other financial decisions requires several specific improvements over present approaches that are not dependent on the theoretical foundation discussed above.

1. A comprehensive wage and compensation measurement is required. This must include some attention to both wages and contingent benefits, since many tradeoffs are both possible and likely. It should take into account both current and future benefits.

2. Control for pre-bargaining or exogenous factors that correlate with union impacts is necessary. Studies that have tested for these effects have found them important.

3. Longitudinal designs are needed to avoid limitations and bias possible in cross-sectional studies of a process with clear multi-year characteristics.

4. A vector of union activity variables is needed to reflect adequately the modes of possible influence.

5. Improved measures of the policy context are necessary. There should be empirically derived weights for statutory characteristics based on either survey-based assessments of importance or level of enforcement. Policy structure concepts should be included to encompass the nature of the enforcement mechanism and the linkages with local decisions and constraints.

6. Direct costs of bargaining are poorly understood. Micro-level analyses of bargaining activity are needed to assess the full range of costs and possible indirect benefits (e.g., better management).

7. The politics of labor policy development and implementation have not received sustained or systematic attention. The political functions of policies may go beyond direct effects on labor relations. Assessment of these impacts would require research on areas of political concern beyond education or labor-management relations.

IV. IMPASSES AND IMPASSE RESOLUTION

Policies for the control or resolution of impasses are generally where state government has its most direct and detailed intervention into labor-management relations. The basic posture for other policies is to leave the conduct of affairs to the parties. The guiding principle is that the best kind of labor-management relations is that in which the parties exercise the most discretion compatible with the public interest. It is in the area of impasse control and resolution that conflicts with the public interest seem the most common and most severe. This is primarily because work stoppages are potentially damaging to the public and it is during impasses that the prevention of work stoppages seem most necessary and efficacious. This is an untested assumption about public labor-management relations, plausible but still open to question. For the time being, it remains one of the main bases for policy (Sulzner, 1977).

Another reason for intervention in impasse situation is that they often are or appear to be decisive to the overall outcomes of bargaining. An impasse is usually a crisis where major decisions are made and patterns for future relations are established. State intervention in this criticial juncture of bargaining raises major issues of the power relationsips between the parties and the political relationships between the state government and the other governmental employers--especially local government. Thus, the politics of impasse control is a central part of policy analysis for this topic.

Four main questions can serve as the basis for review of the existing research on impasse control and resolution:

1. How does policy affect strike behavior?
2. How does policy affect outcome of bargaining?
3. How does policy affect the process of bargaining?
4. What problems are associated with the use of impasse resolution procedures?

Answers to these questions form the remainder of this section.

Strike Policy

The basic objective of public policy in this area is to prevent or deter strikes without undue disruption of the bargaining relationship. How much intervention constitutes undue disruption of the local relationship is, of course, a matter of considerable debate and one which we will not settle here. This is simply a political constraint which serves to define a boundary of strike (and impasse) policy.

One fundamental question is whether public sector bargaining laws cause or deter strikes. (A policy objective could presumably be to completely prevent strikes, but this is generally seen as an unreasonable expectation for school bargaining.) Determining whether one particular element in the environment, i.e., the law, causes or deters strikes requires a model of strike determinants (similar to the wage determination models discussed above) to control for the impact of other factors. When examined this way, comparative studies of state-level strike activity point to a small positive relationship between the presence of laws and strike activity (Burton & Krider, 1975, 1976; Perry, 1977). Burton and Krider (1975) used such a model employing characteristics of political and economic environment and three measures of strike activity: strikes per million employees (FTE), striking employees per 1,000, and number of man-days idle per 1,000. These are indexes of the three basic dimensions of strike activity identified by Stern (1978), i.e., <u>frequency, breadth,</u> and <u>duration</u>.

Using this approach, the evidence on the efficacy of law in general is not encouraging. Measures of policy, i.e., presence of law, whether strikes are permitted or penalized, use of third party procedures, mandatory bargaining or right to work legislation are generally nonsignficant in the regressions. Where there are significant results, the laws encouraging bargaining seem to encourage strikes mildly, penalties are impotent and use of third parties is positively related to strikes. In a similar design, Perry (1977) used an index of legal strike policy and similar measures of strike activity including a summary index. The results are parallel, i.e., the legal variables are positively related to strike activity. Though hardly conclusive, the results of these controlled studies suggest a consistent, though small positive relationship, i.e., legal attempts to regulate strikes are associated with strike activity.

Simple comparisons of strike activity before and after legislation have also been attempted, although such uncontrolled studies are difficult to assess. Colton (1978) compared state activity before and after legislation without distinguishing among types of law. He found considerable regional variation and no consistent pattern of strike increases or decreases after legislation, although in some northeastern states there was a large increase in strike activity following the passage of bargaining laws for public employees. While this study lacks a system of controls, Colton is careful to point out the limitations and the difficulty of distinguishing between law-caused strikes and those resulting from social changes and economic pressures. He also criticizes an earlier study (PSRC, 1976) which appeared to have serious biases.

So, the basic question of legal causes of strikes remains cloudy, partly as a result of technical problems with the research designs. Differences in variables and times chosen make direct comparison across studies difficult. The measures of strike activity are not necessarily comparable and require different models for adequate study (Stern, 1978). More importantly, there are competing hypotheses about the general effect of law on actions. In one view, strikes and the passage of laws are products of the same general trend of increased public worker militancy. If anything, the laws have a mild deterrent effect which is washed out. An alternate view is that by encouraging bargaining and militant action, the laws create an atmosphere in which conflict is more frequent and thus, strikes more likely. At the same time, mandatory bargaining laws cause some school systems and local governments to negotiate before they are prepared, leading to impasses. There is some evidence to support this latter point. The largest post-legislation jump in strike activity was in Pennsylvania: from 40 to 126 strikes (Colton, 1978). This is also a mandatory bargaining law, i.e., all districts had to bargain, ready or not. The great majority of those post-legislation strikes occurred in small districts, suggesting first-time bargaining or lack of general experience. Also, the frequency of strikes diminished over time. The problems of inference in such a complex area are vividly illustrated by this example, but they are no less in other jurisdictions.

Part of the problems in the interpretation of strike impacts is the paucity of model-based research. Models of wage determination behavior have been developed and tested widely in the private and public sectors. For strike behavior, however, there has been little spillover of private sector research to the public, and less private sector research to begin with (See Stern, 1978, for a review of this literature). Much more attention has been given to the nature and impacts of particular dispute resolution procedures developed as part of the strike-prevention aspects of legislation. But even in these studies, reviewed below, the attention to impacts on strikes has been largely ignored or assumed from uncontrolled studies. It is clear from our own and others' reviews of the literature (Stern, 1978; Kochan, 1979) that considerable attention is needed to building better models of public sector strike behavior. This is especially true for school districts, since they seem to be the more strike-prone part of the public sector (Colton, 1978).

The second major question of interest is whether strike penalties or prohibitions have a deterrent effect on strikes. Here the matter is just as ambiguous. There is some evidence that strike penalties do impact on the bargaining and on outcomes. Gerhart (1976) found that a strike prohibition with specific penalties diminished the comprehensiveness of contracts bargained thereunder. A non-specific prohibition against strikes had no effect. McDonnell and Pascal (1979) also report that the presence of strike prohibitions in the law was related to slower growth of contracts. But neither of these studies deal with strike behavior or the actual enforcement of strike penalties. No statistical studies of the enforcement of strike penalties or their relations with strike action were found.

However, there was some behavioral evidence that sheds some light on why the statutory provisions themselves do not seem to be related to strike action. There is great variation in the regularity and severity with which strike penalties are enforced. Grey and Dyson (1976) examined the consequences of 353 teacher strikes. Of these, 122 involved remedial penalties. Of the 87 that led to injunctions, only 29 resulted in penalties. Of the 29 that involved dismissal or suspension, 14 resulted in reinstatement. Of the other penalties, 31 resulted in total or partial amnesty as part of the settlement. Graber and Colton (1980) go into more detail on the use of injunctions in teacher strikes. They found enforcement spotty, lacking in clear standards and distorting of the bargaining process. In studies of specific states, Geiger (1979) found the impasse procedures in the statute apparently ineffective, and Williams (1979) found the Florida alternatives to striking seriously distorted the bargaining.

In contrast to the school district picture, bargaining in police and firefighter employment has been relatively strike-free. The states with compulsory arbitration statutes have had considerably lower strike incidence than those without (Kochan, 1978; Doherty & Gallo, 1979; Lipsky & Barocci, 1978; Stern et al., 1975). These impacts are discussed at some length below, but direct comparisons with teachers are not fully justified due to the political and organizational differences between them.

Though penalties are uncertain in terms of impact on strikes, the picture, with respect to the effects of impasse resolution procedures, is clearer for some areas. The impact of impasse resolution procedures--mediation, fact finding and arbitration--has been more thoroughly studied, both respecting outcomes of bargaining and the process itself.

Most of the research has focused on the use of compulsory arbitration, either standard or some form of final offer.[8] To assess the effects of an impasse procedure on salary outcomes, a model of wage determination or some other form of control is needed. Stern et al, (1975) used wage determination models to control for effects other than arbitration use, comparing two times within states and across states (Pennsylvania, Michigan, Wisconsin). They compared final-offer arbitration with conventional arbitration. Drotning and Lipsky (1978) used a similar wage determination model for the New York State experience, 1968-72. They found a measurable but small impact on salaries in the first year (+ 1-1½ percent) but none in the second year of final-offer arbitration. Going to impasse generally resulted in higher salaries, but the results were not uniform over time or region of the state. Going to impasse produced from 0 to 4 percent advantage, depending on year and region (upstate/downstate). All but one of the significant regression coefficients for the upstate sample were positive. Only striking in 1971 produced lower salaries. For the downstate sample, use of impasse procedures in 1972 was associated with lower salaries. Use of lagged variables for past impasse experience of districts was even more important than current use in explaining salary impacts. This fits the notion that parties learn how to exploit the procedures over time and improve their positions. Consistent use of fact-finding was most profitable for upstate teachers, but not generally so downstate. Base salaries were essentially unaffected in either region. Results for higher salaries were positive in some years and absent in others. The overall assessment is that the use of the fact-finding procedure generally resulted in higher scheduled salaries, but more in the middle years of the sample and less in downstate districts.

The salary determination model approach used in these two studies is the preferred one as far as control of other factors is concerned. But these studies had major shortcomings. Stern et al. (1975) did not compare arbitration with non-arbitration results, nor did they use total compensation as a dependent measure. Therefore, their results cannot be interpreted to reflect pure arbitration effects or total economic effects. Drotning and Lipsky (1978) did not use total compensation either, so that study has the same qualification. They also lack comparison with other states and did not report on arbitration experience, since there was none for teachers in that period. We, thus, know that the salary impacts of impasse procedures are neither reliable over time nor indicative of total economic effects. They are clearly affected by the experience of the parties and the external economic conditions.

Assessment of arbitration and other impasse resolution procedures has also been done on a quasi-experimental basis, using either pre-post intervention measures or comparisons of cases which do or do not record use of a given procedure. Kochan (1977) and Doherty and Gallo (1979) compared arbitrated and non-arbitrated settlements in New York State. In both cases (1974-1977 data and 1977-1979), the evidence does not support the conclusion that a significant increase in wages results, i.e., an average advantage of 0 to 2 percent in 1974-77 and less than 1 percent in 1977-79 for police and fire salaries. As with the other studies, no measure of total compensation was used.

The overall salary-impacts conclusion from these studies is that some positive impacts are observed, more for teachers than for public safety employees. Use of fact-finding and mediation are more likely to produce a positive wage impact than arbitration. There is no apparent difference in salary awards between conventional and final-offer arbitration regarding wage settlements. There is no evidence on overall economic impacts.

Impacts on Bargaining Procedures

Use of impasse resolution procedures has been "accused" of having certain negative effects on bargaining: the "chilling" effect and the "narcotic" effect. Chilling refers to the tendency of parties to avoid serious concessions in bargaining in anticipation of third-party intervention. Thus, the presence of the procedures creates a self-fulfilling prophesy of use; parties avoid concessions and are more likely to end up in impasse and need the procedure. The narcotic effect refers to the hypothesis that once parties use the procedures they will develop dependency and tend to use them more often, losing the ability or motivation to reach their own agreement. Both effects have been the subject of considerable attention and research.

The chilling hypothesis has been tested primarily by examining the rate of recourse to impasse procedures (greater use = more chilling) and by concession behavior (fewer concessions = greater chilling). Wheeler (1977) compared concession-making and gaps between union and management positions in firefighter arbitration versus fact-finding situations. He reports the gap was greater for the arbitration cases as evidence of chilling. Anderson and Kochan (1977) report a tendency for use of arbitration to increase in Canadian federal

service, additional evidence of chilling. Kochan (1977) has mixed results. There was tendency to greater impasse and use of procedures (greater chilling) but also no evidence of reduced compromise behavior for New York police and firefighters. There is other evidence against that hypothesis. Doherty and Gallo (1979) found no evidence for New York police and firefighters for the two years following Kochan's (1977) analysis. Lipsky and Barocci (1978) found that the onset of final-offer arbitration in Massachusetts led to greater use of impasse machinery (chilling), but relatively few went all the way to arbitration (less than 7 percent). By contrast, Michigan (Wolkinson & Stieber, 1976) and Hawaii (Klauser, 1977) have had low rates of use of impasse machinery, evidence against chilling. Feuille (1977) reports both Michigan and Wisconsin have increasing use of impasse machinery. But Olson (1979) reports lack of support for chilling in Wisconsin over a longer time span (1972-77). Similarly, Gallagher and Pegnetter (1979) report low rates of use of impasse and arbitration machinery in Iowa, which they attribute to the unique and complex structure of the statute and the strong incentives for the parties to settle.

The structure of the system also seems to affect the way in which the processes are used. Final-offer arbitration schemes seem to have less of a chilling effect than conventional arbitration (Stern et al, 1975; Feuille, 1975, 1979; Lipsky & Barocci, 1978). Notz and Starke (1978) and Subbaro (1978) studied arbitration in a laboratory setting, finding that the structure does influence actual behavior in ways consistent with the chilling hypothesis. Notz and Starke also found that final offer arbitration led to lower expectations and more feeling of personal responsibility for the outcomes. In a survey of active arbitrators in Michigan, Weitzman and Stachaj (1980) found that further variations in actual structure of the arbitration process were associated with how the parties behaved. Particularly, more arbitrator discretion vis-a-vis procedure led to greater tendency of the parties to seek an agreed-upon solution.

These findings reflect much of the underlying conceptualization of the impact of arbitration on bargaining behavior. The purpose of the details of process, e.g., final offer, multiple modes and arbitrator discretion is to produce pressure for the parties to settle without recourse to the process at all. The pressure is to come from the party's perception of risk: the more uncertainty, the greater is the risk and the greater the risk, the more likely it is that voluntary settlement will be reached. Laboratory studies and basic bargaining theory point to these conclusions (see Rubin & Brown, 1975). But risk and propensity to settle is also a matter of the stakes involved and outside pressures on the parties. Political pressures can mitigate against making concessions until impasse if third parties are involved (see Sulzner, 1977; Feuille, 1979),

or existing levels of hostility may make concessions too difficult. In short, the legislated structure of the impasse machinery can affect the behavior of the parties and so can the histories and dynamics of the relationship.

The same conclusions apply to the question of the narcotic effect. However, the general picture for the importance of the narcotic effect is less convincing than for chilling. Comparison of Kochan (1977) with Doherty and Gallo (1979) shows a drop in use of arbitration, inconsistent with the notion of dependency or addiction. Olson's (1979) longitudinal study of Wisconsin also found little support for the narcotic effect. He suggests that the dependency that does occur is related not to use alone, but perhaps to local politics or fiscal constraints. An increased, followed by a decreased, use of impasse resolution procedures in New York (1968-77) was found by Lipsky and Drotning (1978), further evidence against the narcotic effect. Low incidence of repeated use of arbitration is recorded as well by Feuille and Dworkin (1979).

Two other hypotheses, or criticisms, of the use of impasse mechanisms are the "half-life" and inter-temporal compromise notions. The "half-life" concept suggests that the tendency to use arbitration for difficult impasses will decay (as in the radioactive isotopes with a given half-life), so that the next time around the parties will prefer a strike. Anderson and Kochan (1977) found some evidence for this in Canada. But other longitudinal studies of use of arbitration show very little support for this hypothesis (see Doherty & Gallo, 1979; Olson, 1979; Lipsky & Barocci, 1978). The existence of a tendency to inter-temporal compromise or "flip-flop" decisions would be shown by arbitration awards which favored management one time, unions the next, and so forth. This has been considered a particular problem for final-offer arbitration situations. Some support for this was found in Feuille and Dworkin 's (1979) study of Wisconsin, Massachusetts, Eugene, Oregon, and major league baseball, but the support was weak. The authors point out that their longitudinal design does not allow control for the propensity of parties to use arbitration, or other causes of submitting winning proposals. So while these are plausible hypotheses about impasse processes, they do not have meaningful empirical support.

Behavior in Impasse Resolution

Arbitration. Surveys of arbitrators have been used to assess behavior of the parties to the process and attitudes toward it. Some direct policy-related findings have emerged from these studies. Comparability emerges as the principal criterion on which arbitrators rely in making awards (Kochan et al., 1977; Doherty & Gallo, 1979; Weitzman & Stochaj, 1980).

Ability to pay generally ranks next. This may account for the small differences noted between the arbitrated and non-arbitrated wage settlements. Rules that allow arbitrator's discretion will, as expected, result in wide variation in procedures (Weitzman & Stochaj, 1980; Doherty and Gallo, 1979). Two factors in procedure that seem to make a difference in the nature of the process are time limits and deadlines for making final offers, that is, how late in the process an offer can be changed. Allowing late changes seems to facilitate the parties finding a voluntary settlement (Weitzman & Stochaj, 1980). Time limits for awards, especially their strict enforcement, do expedite the process. In New York the average time from impasse to award in 1978 was over 300 days but in Iowa, where deadlines are enforced, only 15 days are allowed (Doherty & Gallo, 1979). These are all features of the statute and regulation structure that are subject to direct control at the state level or that may be negotiated into the local agreement.

Fact-Finding and Arbitration

Policies that provide fact-finding as a prior step to arbitration tend to build a base for the arbitration award by reducing the number of issues (Gallagher & Pegnetter, 1979), reducing the time needed for arbitration (Doherty & Gallo, 1979), and building a basic case on which the eventual award is fashioned (Holden, 1976; Lipsky & Barocci, 1978). Fact-finding also seems to reduce the number of issues brought to arbitration (Gallagher & Pegnetter, 1979). It, therefore, seems to be a useful step in its own right, as well as a building block of a coordinated process.

Mediation

This is the most common impasse resolution procedure, but on its own the least effective in promoting final solution. The range of success for mediation seems to be from about 20 percent for police and fire cases in New York (Doherty & Gallo, 1979) to about 40 percent for teachers in Iowa (Gallagher & Pegnetter, 1979). These are misleading figures. It is extremely difficult to determine when mediation is being used in fact-finding and arbitration. It would be proper to suggest that all impasses resolved short of arbitration or strike are mediated. By that criterion the success rate is closer to 90 percent in Iowa and close to 80 percent in Wisconsin and Michigan (Feuille, 1977). There is no basis for clearly distinguishing mediation from the other processes.

The Study of Impasse Policy

The assessment of impact of impasse policy is plagued by many of the same problems of wage impact and some unique to this topic. The common ones, including lack of experimental control, inadequate causal models, non-comparability of designs and lack of access to behavioral data, will not be dealt with in detail again. The specific problems will receive greater attention.

The most important shortcoming of the body of studies discussed above is their limited range. The only impacts of interest in almost all of the studies are specific labor relations impacts such as wages, strikes, etc. Practically no attention is given to either political impacts as discussed by Groding (1976), Sulzner (1977), and Feuille (1979), or to impacts on the operation of the governments themselves. Thus, it is only possible to speculate whether arbitration serves societal purposes or what the impacts may be on the effectiveness or efficiency of the governments, subject to impasse resolution policies. The empirical and analytical problems of such research are monumental. Little enough is understood about the production functions and internal operations of governments as it is. Thus, tracing the distal and probably tenuous effects of impasse resolution practices currently may be impossible. However, this is an important element for theory building and research agendas.

One of the main empirical problems with research on impasse policy impacts is the uncertainty about the nature of the intervention itself. Policy establishes an institutional structure of rules, agency operations, personnel and principles. But there exist now no methods for either characterizing the structure of that institutional arrangement or, more importantly, describing the differences between the structure on paper and the structure in operation. There is great variation in the application of statutory criteria for arbitration (Doherty & Gallo, 1979), in the use and enforcement of injunctions (Grey & Dyson, 1976; Graber & Colton, 1980) and even the knowledge of the participants of the existing rules (Weitzman & Stochaj, 1980). So the central question, <u>impact of what?</u> remains unclear. It even seems that the attitudes of arbitrators toward their role affects the kinds of awards given, particularly the conservative bias reported by Weitzman and Stochaj (1980). There is a lack of a detailed behavioral descriptive base from which to build theory of how the institution operates and to build measures of variation. Feuille suggests (1979) that perhaps a "Gresham's Law of Arbitration Research" operates to drive researchers to the easy targets of labor relations impacts rather than the messy political and operational ones (pp. 75-76).

The subjective nature of the decisions made within an impasse resolution policy presents another central research problem. In virtually all aspects of impasse resolution processes, neutral parties are to act in the public interest to resolve the dispute and often make substantive awards. Until this process of subjective judgment is much better understood, it will be virtually impossible to link the nature of the formal policy in statute or case law to the subjective process engaged in by the neutral. There are general studies of how arbitrators decide cases but they are almost all in the private sector and may not be applicable. More particularly, little is known about how to assess the place of widely varying state policy on the actions of these arbitrators and other interveners.

These labor-relations system considerations can be extended in many ways into the rest of school operation. This extension requires some examination of the main policy issue through which bargaining can interact with the day-to-day process of schooling, i.e. scope, or what is to be negotiated. This issue is clearly within the labor policy arena, but connects as well with the school code, local policies and school content. It can be thought of as the main interface between the labor-relations system and the rest of school governance and operation.

V. SCOPE, GOVERNANCE, AND OPERATION IMPACTS

Scope of Bargaining

Scope is the main policy area where bargaining interfaces with school operations and policy structure (Cresswell et al., 1978). This link is a critical part of labor management relations. However, scope is also one of the most complex topics to be dealt with in the realm of education bargaining. In basic terms, it defines "what is bargainable." Topics outside the scope are usually defined as "management rights." This simple dichotomization is, however, much too simplistic. The parameters of the issue are not distinct. Definitions thus become difficult when the variables affecting scope are examined.[9]

Scope is not an autonomous factor. It exists in a political/social/economic matrix, which makes it difficult to isolate. "The question of scope of bargaining is intimately bound up with a number of other issues such as management rights, strikes, and union strength" (Mitchell, 1976, p. 24). Variations in scope thus become intervening variables, not independent (Zirkel, 1975, p. 2).

The environment in which scope is defined, and thus the framework of bargaining, is affected by the various publics and interest groups involved. As the number of groups with a stake in an issue increases, the chance for conflict increases proportionately. The actions of these groups thus become a policy concern. "The object of labor laws is to establish a balance of power among various legitimate interests - labor, management, and public" (Mitchell, 1976, p. 19). This power balancing is a key relationship (Wildman, 1971, p. 51) in setting the parameters of scope, which is becoming increasingly difficult as the number of interest groups multiply.

Since federal legislation does not govern scope in the public schools, there has been a state-by-state articulation of the terms of scope, reflecting specific state circumstances. "The result has been a hodgepodge of definitions, which for better or worse, has grown to reflect the heterogeneous systems, political milieus, and legal traditions of the states" (James, 1976, p.75). This complex definition process is further refined at the school district level. It is here where that statute becomes operationalized into practices. As we look at the levels at which scope is articulated, the definition process appears to expand exponentially.

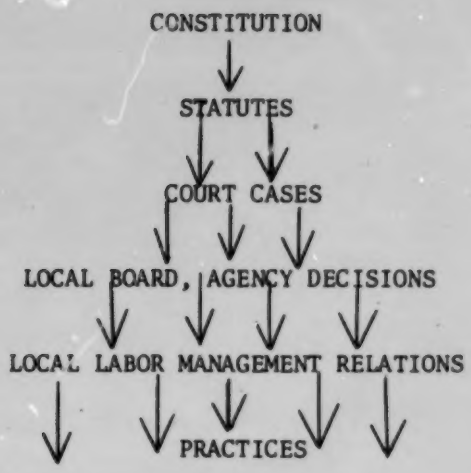

Figure 3. Levels of Decision Making for Scope of Bargaining

Scope As a Policy Concept

The aim in this review is to examine the variables involved in scope, and their impact. First, we will look at the policy and variables affecting scope decisions. Secondly, the categorization problem and existing frameworks will be examined in detail, with presentation of a possible comprehensive model for examining scope. Next, we will examine impact models as tools for assessing operational impact of scope items. Finally, we will examine the direction research has taken, and possible areas of further work.

The model to which states look in their attempt to determine scope is the federal framework established by the NLRA. This private, industrial model labels scope as "terms and conditions of employment": This general terminology was further defined in the Borg-Warner decision [NLRB vs. Wooster Division, Borg-Warner Corporation, 356 US 342, 394 (1958)] as follows:

> The scope of negotiations is divided into two areas and bounded by a third area:
>
> a) "mandatory" area - those subjects which must be negotiated upon request of either party.
>
> b) "permissive" area - those subjects which may be negotiated only upon concurrence of both parties.

c) "illegal" area - those subjects which may not be negotiated into a contract regardless of the requests or concurrence of the parties, (Zirkel, 1975, p. 4)

The states use this categorization to direct negotiations about scope; however, this categorization is "...only a first step in the determination of negotiability" (Zirkel, 1975, p.37). This categorization has required further refinement on a state-to-state level. Not all states have education bargaining laws, but the states that have seem to have focused their approach to defining scope around one of the following options:

1 - Set broad guidelines and let the parties to the contract figure out for themselves what to include,
2 - Specify only those items that cannot be bargained,
3 - Mandate all the items that must be bargained. (James, 1976, p. 95)

The absence of federal guidelines and many state statutes allow flexible interpretation by each state, thus, there is little consensus across states. The result is that private sector practices are suspect when applied to the public sector education bargaining. "...the social and political context for public sector bargaining differs markedly from that of the private sector" (James, 1976, p. 96). The specific context in which public education exists in itself is unique:

1. There is a definite set of interest groups in the education sector, each group having its own set of expectations. Four groups are defined by Mitchell: 1) teachers 2) management groups, 3) school clients, 4) public electorate (Mitchell, 1976, pp. 8-9). The difficulty becomes balancing the interests of all parties.

2. Public education offers little alternative choice to residents of the school districts. There is "...compulsory acceptance by the clients, and compulsory support by the taxpayers" (Mitchell, 1976, p. 12). There certainly are demands for quality and efficiency, but there is little pressure from market competition in the education sector.

3. The duty to the public issue further colors bargaining. Education is considered a public good. As in any public service industry, the philosophy exists that services should not be disrupted, resulting typically in the prohibition of the right to strike.

4. Resource availability in the educational sector directs any bargaining and non-bargaining decisions. Declining enrollments and inflation have often changed the state formula for fund allocation in school districts. Financial constraints have limited the flexibility of fund distribution within districts.

5. The nature of teaching itself changes the focus of bargaining. Teaching is isolated from direct view and control from the public. This allows teachers greater autonomy in their work situation than many other public services. This, tied with faculty expertise and specialization, gives the teacher greater control over day-to-day operations in the classroom. Teachers directly control the teaching arena. "...the closer a group of workers comes to controlling or having an important voice in their daily work world the more professional they are." (Strom, 1979, p. 163). This feeling of professionalism influences the teachers' approach to bargaining.

6. The accelerated rate of change in education keeps the bargaining process in constant flux (O'Brien, 1976, p. 4). Change becomes an added source of conflict as, for example, electronic teaching tools may change the student-teacher ratio. Also, the rate of information grows exponentially. This tends to increase the possibility of professional obsolescence and the need for greater professional development. This may affect the way in which tenure and job security are handled at the bargaining table.

Components of Scope as an Issue

The statutes attempt to balance the power struggle between the parties concerned with terms and conditions of employment and those concerned with management prerogatives. The conflict is not over whether power should be balanced, but where the conflict itself seems to surface.

First, there is the tension over professional versus management control issue. We have already discussed the comprehensive nature of the teachers' involvement in the classroom. Management feels that education policy decisions are within the realm of management prerogatives. Teachers feel that these decisions directly affect day-to-day classroom operations; and therefore, are terms and conditions of employment. Faculty seek to expand the scope of bargaining, while management seeks to restrict it. To broaden the scope of bargaining is to change the balance of managerial control (Kerchner, 1980, pp. 398-399). As it is restricted, teachers lose control over daily activity. State statutes are structured to regulate scope in order that management prerogatives are not compromised. There is some evidence that the states are successful (McDonnell & Pascal, 1979, p.45). This success can become an added source of conflict when one side feels that the balance is in favor of the other.

The regulation of strikes becomes a second source of conflict. In the public sector, the strike is usually illegal. In negotiations over the expansion or restriction of the range of scope items, the question facing the negotiating parties is, "Would teachers feel strong enough over an issue to strike anyway?" (Bowles, 1978, p. 659). Here the power balance and management control issue come into play. Bowles cites the Biddeford Case [Biddeford vs. Biddeford Teachers Assn., 317 A2d (Me 1973) S Jud Ct, 1 PBC 11 10, 056 (Bowles, 1978, p. 357)] where the concept of balancing the loss of management control with the trade-off benefit of reducing strikes becomes articulated. Zirkel (1975) also believes that often management does not wish to risk the potential of a strike by narrowing scope. Bowles (1978) considers this a safety valve in avoiding strikes. The key in negotiating the breadth of scope is to establish parameters satisfactory to management but not alienating enough to induce faculty to strike.

The third basic area of conflict is categorization. The key to the entire issue of scope becomes definitional boundaries. The courts, in interpreting statutes dealing with scope definition, have looked to four basic models or philosophical approaches. These models tend to be mutually exclusive in their definition, even though they are dealing with the same basic concept. The semantic problem of verbal definition and interpretation becomes further complicated by the diversity of interests involved. The wider the

range of interests, the less chance for clear interpretation and the greater chance of "diversity and contradiction" (Mitchell, 1976, p.3)

The four basic definitional models we will be examining have been presented by Bowles (1978). The frameworks deal with the same scope issues but are interpreted within four different frameworks.

1. Legal/Rational Model

This is the most restrictive model, and used by the courts with the least frequency. Its basis rests on the assumption that the legislature cannot transfer law-making power to any other level (the law making being scope determination). Here definition stops at the statute. It is based on the premise that there is a clear line between legal and illegal. There is no room for interpretation. Therefore, it is a rigid model having all items mutually exclusive.

This model has other limits which restrict its usefulness. Bargaining occurs on a local level. Required is a public comprehensive language, while the terminology used in this approach is rigid. According to Dunlop (1977), " . . . language should be shaped to fit local circumstances." (p. 80)

Bowles (1978) believes that the illegal delegation doctrine artificially restricts bargaining by specifically listing illegal subjects rather than leaving them open to possible negotiation. There exists a hazy line between legal and permissive, some of the "illegal" items may be in this gray area. Thus, what develops is a contrived set of definitions rather than one with the flexibility to deal with each specific situation. However, this idea has faded since few items are not totally non-negotiable.

2. Labeling Model

This approach deals directly with the dichotomy between terms and conditions of employment and education policies. It is a simple listing of items which fall into each category:

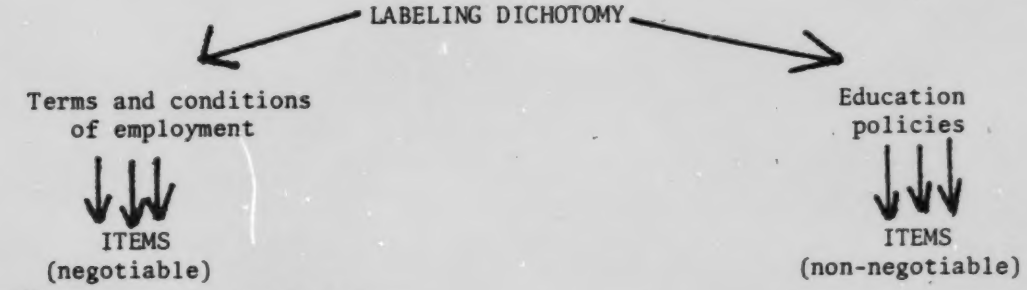

Figure 4. Labeling Dichotomy

This model functions under the premise that employment and policy are mutually exclusive items. Negotiability is determined on this basis.

The first shortcoming of this model is that there is a general lack of consensus as to a decision rule for choosing one side or other of the dichotomy. Labeling involves a simple listing of items which fall into each category with little articulation of the reasons behind the decisions. Zirkel's (1975) analysis presents to the reader that simple classification is difficult.

> The determination of whether a topic fits in the mandatory area or in the permissible area of negotiations depends upon whether the topic is more a matter of "conditions of employment" or more a matter of "educational policy."
>
> a) The categories of "conditions of employment" and "educational policy" are somewhat flexible and overlapping notions.
>
> b) "Educational policy" consists of the statutory powers of boards of education, including those matters which are fundamental to the existence, direction, and operation of the school system.
>
> c) Prevailing practices of teacher-board negotiations provide an additional factor for this determination. (Zirkel, 1975, p. 5)

It is not, however, fully established that terms and conditions are mutually exclusive, especially in the education arena. Rather than going into a long discussion of the issue, the Connecticut Supreme Court states it rather succintly:

> The problem would be simplified greatly if the phrase "terms and conditions of employment" and its purported antithesis, educational policy, denoted to definite and distinct areas. Unfortunately, this is not the case. Many educational policy decisions make an impact on a teacher's conditions of employment and the converse is equally true. There is no unwavering line separating the two categories. [Connecticut Supreme Court, 162 Conn. at 581 (Zirkel, 1975, p. 39)]

Metzler and Gerrard (1977) feel that artificial isolation of these items is impossible since each has impact upon the other (pp. 66-67).

3. Impact Balancing

The basis behind this philosophical approach is that items are only considered illegal if they are directly stated as thus in the public bargaining statute. Therefore, the courts only need to determine if a subject is mandatory or permissive. Definition is done by a case-by-case analysis of the courts. The courts, in an attempt to balance the interest of the parties, examine where the impact lies. In other words, it examines direction of impact and who is impacted upon. According to Zirkel (1975), ". . . the general test to determine negotiability must take into account the impact on teachers as well as the management rights of the boards" (p.4).

A recurring bias in court analysis has been in the direction of the teachers (Bowles, 1978, p. 239). The behavioral question behind this bias is the issue, "Do teachers feel strong enough over an item to strike?" In this situation the threat of the strike over vital concerns often forces the courts' hand in favor of the teacher. Allowing bargaining over a wider range of items decreases the threat of a strike.

Secondly, though analysis of scope items is focused on direction of impact, there is little examination of directness or magnitude of the effect on the operation of the school district. A much cited case brings out this bias. The Kansas Supreme Court has stated that a guide for the establishment of scope boundaries is a test of impact. "The Court felt the key was how much impact an issue had on the well-being of the teacher, as opposed to the issue's effect on the operation of the school system." (Fox, Sexton, & Patter, 1978, p. 155) This approach limits the effectiveness of scope decisions since district-wide consequences have not been accounted for.

4. Public Service Rationale

This perspective underlies all philosophical approaches though often it is used alone to determine negotiability of a subject. The basic premise on which it rests is, "in the public interest." The idea is that items which directly affect the public interest are non-negotiable items and should be kept away from the bargaining table.

The problem with this approach is that it becomes very restrictive as the courts broaden their definition as to what is affecting the public good. Based on this outlook, once bargainable items may be declared non-negotiable if circumstances

indicate any infringement upon the public well-being. There is no indication of the exact point at which an item becomes a threat to the public interest.

Secondly, there is a problem of definition of interests. "It should be recognized . . . that the needs of parents, teachers, and students are not always congruent." (Smith, 1974, p. 25) Therefore, it is difficult to define negative impact when client groups are diverse.

The limits of the previous models are: (1) rigidity, (2) lack of consensus, (3) non-comprehensive nature and (4) lack of boundaries. When analyzing negotiable items, a framework should take into account all aspects surrounding decisions, including change processes. Policy articulation exists in a changing environment; therefore, approaches to scope determination require a flexible perspective. "The use of the phrase 'conditions of employment' reflects a judgment that the scope of negotiations should be relatively broad, but sufficiently flexible to accommodate the changing needs of the parties" [West Hartford, Connecticut, 165 Conn. at 581-82 (Zirkel, 1975, p.35)] . From the legal evidence we have seen, a comprehensive definition in flux might help to focus the issue of scope.

At the level of policy determination, a model of theoretical approaches may be a useful tool when analyzing alternatives. In dealing with scope there is a need to take into account all the perspectives mentioned. Below is a graphic display of a combined model.

	Logic Determinative	Outcome Determinative
General Definition	Illegal Delegation Doctrine	Public Service
Specific Definition	Labeling	Impact Balancing

Figure 5. A Model for Scope Policy Analysis

This framework focuses on the rationale behind decisions. Focusing on the rationale helps to clarify scope boundaries and help parties understand the specificity or generality of items. As an analytical tool, this model may be useful for comparing statutes and decisions and for focusing attention on how statutes are conceptualized to form a definition of scope which, in turn, is applied on a case-by-case basis. This framework may, as a tool, direct our understanding of the impact of items.

Methods and Policy Impact

Again we turn to the question of evidence and measurement of policy impact in this operational area. The research here clearly falls into two styles in terms of research methods. The studies of quantitative policy impact on wages, etc., depend on classic employment of variables, regression or regression-related analytical methods and inferences of impact from statistical tests. They depend on the testing of a priori models of effect determinants, largely devoid of specification of the operational details of impact mechanism. They make no provision for non-recursiveness of the models or for alternative cause-effect links. The results yielded are reliable within the assumption made, but difficult to relate to practice or policy-mechanism questions.

Most of the other studies are based on qualitative methods or surveys. The analytical models are much less specific and several of the works are theory building in objectives. They suffer from questions of reliability, but give more detailed pictures of behavioral mechanisms of bargaining impact and links to the operation of the schools. Therefore, they provide a somewhat better base for speculation about policy impact mechanisms.

The analytical and methodological problems for these studies are quite similar to those of the previous section, but perhaps more severe. The intervention or policy is not clearly or even specifically defined. They are bargaining impact studies, with no clear distinctions among types or variations in bargaining or in the policy-related differences among situations. For example, Hayford and Sinicroppi (1976) described the legal status of supervisors in public sector bargaining. If legal status affected bargaining, and bargaining status affected supervisory roles, and supervisory roles affected teaching, and teaching affected learning, we would see a possible link. Alas, we suspect the policy-contract linkage is weak. Shaw and Clark (1972) found 25 percent of Michigan contracts had illegal clauses. The other links are less distinct; therefore, the inference of policy impact is virtually impossible. In addition, the effects are not defined in systematic or comparable ways. Many of the concepts are necessarily vague (e.g., participation) and may vary greatly. Thus, the inference of bargaining or policy impact may be possible only through a series of rather heroic assumptions which are useful for exploratory purposes, but of limited use for policy development.

The categories and models of scope are a starting point in dealing with the issues. However, it is the impact of these items that affect what really goes on in a district. It is in the operationalization of scope issues where impact becomes visible. The variation in scope items and the diversity of situations require a framework for examining impact. Before developing an impact model specific to scope, we need to examine some general thoughts on impact analysis.

In an examination of impact, the beginning step is a look at policy statements. Policy, in itself, has no pragmatic value. It is in the application of policy where effects are felt. So in order to assess the value of a policy, one must examine its impact. One problem clouding the study of impact is the confusion that results when implementation and impact are equated (Van Meter & Van Horn, 1975, pp. 448-449). A policy can be successfully implemented without having any effect on the public. To examine impact these two areas need to be kept distinct.

Secondly, impact analysis often tends to attempt to measure outputs only, neglecting other intervening variables, i.e., the substance of a decision which may include institutional mechanisms and procedures; the politico-cultural context; and the interests, priorities, preferences, and behavior of political actors (Van Meter & Van Horn, 1975, p. 457). Impact analysis is not a simple task. What it involves is the examination of a process. "It may be useful to view the dynamics of the implementation process in a systems perspective." (Millstein, 1976, p.22) A model for studying impact must also take into account the direction of inputs as well as feedback into the system. In other words, from policy as a starting point, we look at implementation, outcomes, feedback, and the ways in which intervening variables provide linkages.

By using our model of scope determination and combining it with the ideas of Millstein (1976), Van Meter and Van Horn (1975), and Feeley (1979), we have developed the following model for impact analysis which is specific to the public education arena.

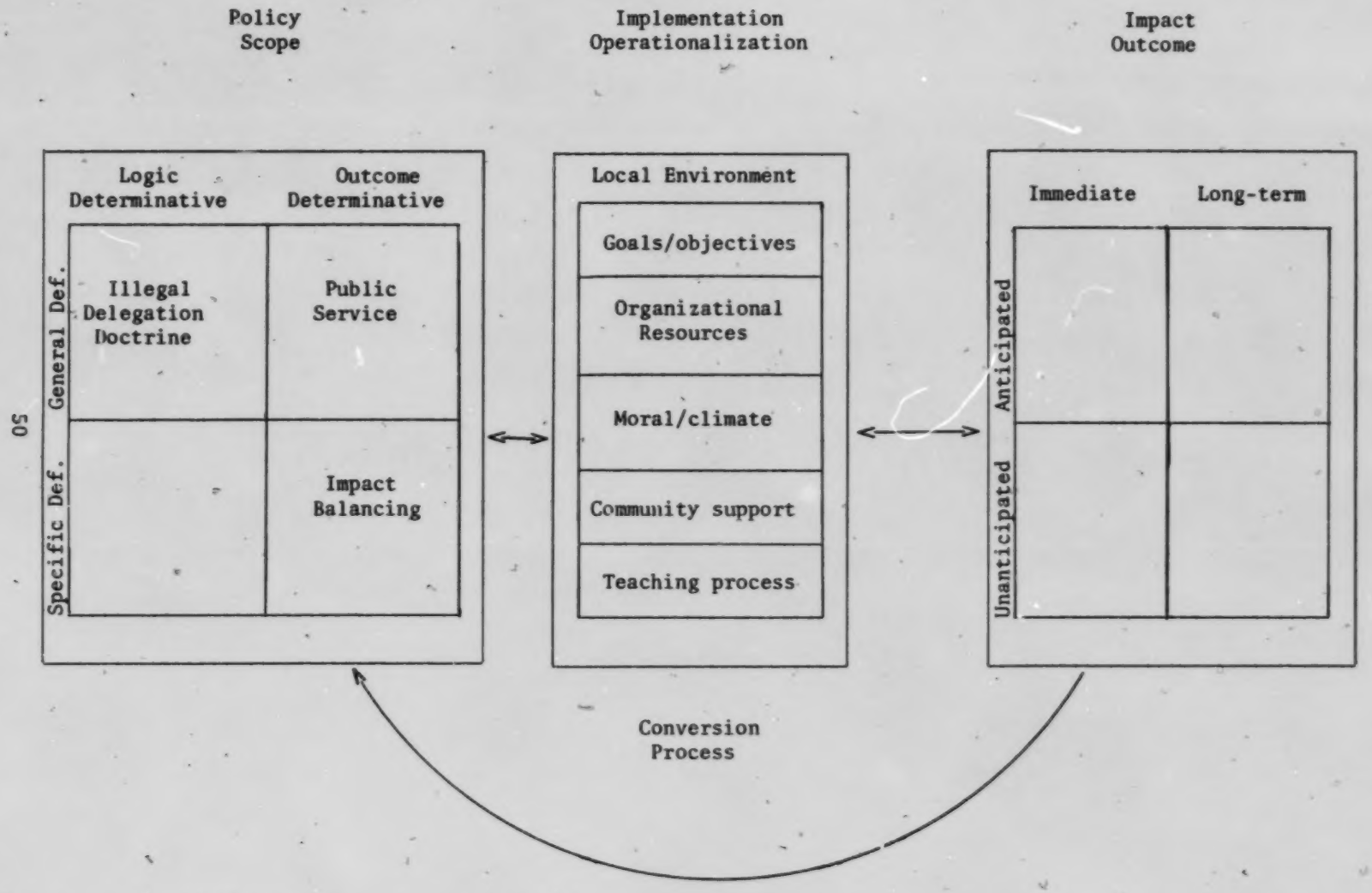

Figure 6. A Model for Scope Impact Analysis

The model attempts a comprehensive analysis of the impact of scope. Referring to our earlier discussion of the numerous issues involved with scope, we feel that this type of analysis is useful in understanding the entire milieu surrounding scope. However, most of the research dealing with impacts has been of a limited nature.

Much of the scope impact research is what Feeley (1979) calls "decision specific" (pp. 3-4). This is a before and after approach. In this case, a scope variable such as "teacher benefits" (Graham, 1976) is examined before and after the inception of formal collective bargaining. Graham (1976) studied these factors over a five-year period in 26 school districts in Indiana. At this point his study ended. The limits of this type of impact analysis is that it examines changes in a variable but does not tie the changes directly to operations in the school district. This provides a narrow focus on impact, ignoring impact on such factors as morale, job satisfaction, pupil performance and cost to the system.

When variables are factored out in this manner, the number of conclusions that can be drawn from the research is limited. For instance, McDonnell and Pascal (1979) examine the impact of non-economic scope issues on school and classroom operations. Their conclusions are that bargaining over non-economic issues increases teacher influence in the classroom (McDonnell & Pascal, 1979, p. 135) and this, in turn, improves teacher morale. This says little, though, on the cost of the "non-economic" factors to the district. Does increased faculty classroom discretion involve more dollars spent on teaching aids?

At the other end of the spectrum of scope impact research are the very general survey studies. Sexton, Fox, and Potter (1978, p. 147) and Zirkel (1975, p. 37) cite court cases and previous research studies whose findings indicate there is an expanded scope of bargaining in the public education sector. Here the impact analysis stops at the policy level and is not carried to the operational level. What appears lacking in both types of studies are " . . . some integrative themes" (Mitchell, 1976, p. 3) that tie the views together as a whole. The impression is that impact has stopped at the policy level. Kochan (1979) believes that this lack of integrative theme leads to research of value only to a handful of academic researchers, not to the practitioners who are in need of this information (pp. 247-248).

There are two other research related problems that arise in scope impact analysis. The first involves what Feeley (1979) views as a lack of time perspective (pp. 4-7). Social science impact research tends to focus on immediate, time-bound results, since it is simpler and less costly to measure immediate effects. "But rarely is the immediate aftermath as important as the long-range impact" (Feeley, 1979, p.5). Most scope studies deal with immediate impact rather than long-term analysis. In Lipsky and Drotning's (1973) study of the effects of bargaining on teachers' salaries in New York State, they noted the increased number of school districts that became organized. Rather than using this information alone, they hypothesized that many of the smaller districts chose to organize, not as a first priority, but because of their proximity to larger, organized districts.

Also lacking from scope impact research is an examination of unintended consequences. Often, policy decisions have far-reaching effects, totally unrelated to their intended results. It is possible that a decision to expand the scope of faculty bargaining may alienate members of the local community, a possible outcome not anticipated at the bargaining table.

In essence, the problem facing researchers is one of complexity. To deal with the total issue of scope analysis, one must not only deal with many variables, but also a series of intervening factors, as well as a complex set of outcomes. There is no obvious way to define the limits of the research reviewed.

One method of establishing boundaries for research is not to examine scope alone, but to examine the interface between scope and other factors in the system. By the mere fact of scope's comprehensive nature, we can examine the interface between labor-management relations with the rest of the school system. In order to draw boundaries, the question one needs to ask is: In what areas does scope interact within the school system? The basic areas of interaction are as follows:

1. Governance - This includes such factors as power, citizen participation and climate.

2. Organization - Factors considered in this area include structure, resources, decision making and change.

3. Teaching — Productivity, effectiveness, morale, autonomy and professional development fall into this category.

By establishing boundaries for the research at the interface of these items, we can clarify the limits of our research. It enables us to focus our thinking while still providing a means of adapting our research to the many variables involved.

Power, Sovereignty, and the Public Interest

The central question about which debate and policy revolve in much of public sector labor relations is: How does union activity affect the public interest? This debate is often couched in terms of support or non-support for the so-called Wellington-Winter hypothesis: that the political power and bargaining activity of public sector unions distort the political process so that the outcomes are not in the public interest (Wellington & Winter, 1971; also Downs, 1957). Support for this hypothesis would come from findings that the outcomes of bargaining are widely divergent from comparable non-bargaining or pre-bargaining ones, or that the public unions could ride roughshod over public opinion and gain most desired political objectives. The alternative view, articulated by Burton and Krider (1971) and Sommers (1974), is that a political "market" of sorts exists and that the public can control or restrain government concessions to unions and maintain some defense of the public interest.

Most evidence seems to point to the latter conclusion. Wage impacts are roughly comparable to the private sector patterns (see above, p. 9). Municipal expenditure patterns do not seem to be markedly distorted (Katz, 1979; Benecki, 1978), nor are schools' expenditure patterns (Kirst, 1975; Barro & Carroll, 1975; Gallagher, 1979). State policy patterns are not grossly affected (Flango, 1976). In reviewing the basic literature, both Cohen (1979) and Feuille (1979) come to basically the same conclusion. So from the point of view of surveys of impacts on the patterns of policies and decisions, the Wellington and Winter hypothesis receives little support. Another element of the impact, however, could be on the nature of participation of the public in school governance and changes in the exercise of democratic control. That requires separate attention.

Participation and Democracy

There seems little doubt that collective bargaining changes the manner in which schools are governed, including the types and character of public participation. The consensus seems to point in the direction of making the process more complex and ambiguous than the more monolithic and hierarchial patterns of the past. Kochan (1977) and Peterson (1977) document the multilateral nature of bargaining at the municipal

and school district level. The multilateral model allows several avenues of influence and participation in decisions. Kerchner et al. (1979) refer to the "muddling" of school governance and the increase in ambiguity. Kerchner in Cresswell and Murphy (1980) reviews the literature describing the loose coupling of school decision making and bargaining, following the concepts of Weick (1976). Thus, those seeking to participate in school governance, i.e., in bargaining or otherwise, are likely to face an ambiguously structured system with multiple decision-making modes and avenues of access.

This leads to the question of how the public does participate in bargaining and related governance processes. The general conclusion seems to be practically not at all. In the most extensive study of that process to date, Kerchner et al. (1979) and Mitchell et al. (1980) report very low levels of public participation directly in bargaining. Such participation requires more time and resources than most citizens have or are willing to expend. Instead they seem to prefer more direct participation either in individual dealings vis-a-vis personal objective or interest group activity or general political participation at the school district level. There has been much advocacy of a citizen role in bargaining because of the perceived importance of the decisions made there (see Cheng, 1976; Reed & Mitchell, 1976). There are notable examples of direct citizen participation in a few districts, notably the experience of a lay-citizen participant on the Rochester, New York, bargaining team plus a community-school board negotiating council and a citizens' task force on collective bargaining in New York City (Silberger, 1980). Other local examples, have been reported but there is no direct record of actual levels of participation (Sarason et al., 1975). But there is no evidence of widespread citizen participation in bargaining. Similarly, public interest in fact-finders' reports and participation in hearings seems to be quite low. (Doherty & Gallo, 1979).

The notion that bargaining removes some of the governance apparatus from direct public participation, due to the private, often secret nature of bargaining sessions and impasse resolution, seems to be upheld. It does not follow that this is necessarily a policy problem. Kerchner and Mitchell's (1980) findings suggest that public control is exerted other ways, in general school district politics and direct action with the board and administration. It is not clear that this is effective control, in the sense of assuring that particular public objectives will be met. But at least the evidence suggests that the mechanism is there.

The Problem of Policy Impact

Indirect evidence of changes in power and negative impacts on the public interest, such as wage settlements and strikes, are readily defined. Inferences about policy impacts on these measurements are quite difficult because of the measurement problems and the difficulty in sorting out multiple causes. Inferences about direct impacts on participation and democracy suffer from additional and deeper theoretical and design problems. There is no unified theory of public participation in local government or commonly accepted definition of what constitutes effective democratic process. Thus, at the level of basic definition and conceptual scheme, this mode of research lacks a common foundation. As a result, the causal models that underlie quantitative studies are either left explicit or rendered suspect. The more meaningful approach seems to be that of Kerchner and Mitchell, (1980) and Peterson (1977): a qualitative approach that searches for descriptions and new generalizations about the process which may be tested as they develop. That means conclusions on policy impact are not justified, but a basis for more detailed and narrow policy studies is built.

Organizational Impact

The major organizational impacts of collective bargaining are, by and large, not directly related to policy. Organizational impacts are more likely to reflect the process of bargaining, shifts in power and authority, and impacts due to bargaining outcomes, especially rules and procedures. But, bargaining policy respecting scope, unit determination and grievance procedures has the potential to have more direct effects on the internal functioning of the school organization. We found no research that directly attempted to trace these policy linkages. So, as with the prior areas of bargaining discussed above, the detection of policy impact depends on inference.

These inferences can be grouped into three major areas of organizational concern and theory: (1) structure, (2) decision making and (3) innovation and change. These areas represent an attempt to define topics that are relevant to the general organizational theory literature, the study of schools as organizations and their connection with bargaining.

Structure

Basic concepts in organizational structure as it relates to bargaining are those of roles, rules, authority, conflict,

formalization and bureaucracy. There is evidence of impacts of collective bargaining in each of these areas, with a fair amount of consistency among the various studies. Collective bargaining appears to result in major changes in role perceptions and role-related conflict. The adversary nature of the bargaining relationship can lead to conflict over the meaning of professionalism (Corwin, 1970) and differing expectations for administrators, teachers and other categoties of workers (Holley et al., 1976; Caldwell, 1970). When the lines of adversary groups are drawn, teachers and administrators feel the pressure to choose sides, leading to conflict within over the choice and conflict with others who choose differently.

The concept of professionalism is central to part of this conflict. Rather than being incompatible, professionalism and militancy seem to be combined in teachers (Corwin, 1970; Hellreigel et al., 1976). Professionalism seems to be a motivating force in moving teachers to act through unions and other means to influence school affairs (see Boyd, 1967).

Part of this effort is in rules promulgated through contract bargaining. Kerchner et al. (1979) found that two (of four) major impacts of bargaining in schools were changes in definitions of teachers' work responsibility and changes in mechanisms of control (evaluation, discipline, etc.). McDonnell and Pascal (1979) report efforts of teachers to expand the scope of contracts over time to include work load and rules. However, the press is not just to expand the contract per se, but to increase teacher autonomy and immunity from management directives and control (Kerchner et al., 1979). Teachers apparently see bargaining as a way to increase their professional discretion through erecting a rule structure that insulates them from external control. This is a bit of a divergence from the usual findings that there is conflict between professionals and managers in bureaucratic settings because of rules. Here, teachers seem to use rule structures to build autonomy. (The literature on the professional-bureaucratic conflict is reviewed in Hall, 1977; and Mintzberg, 1979.) Bargaining also may be used to increase teacher participation in other rule and decision-making processes (discussed below).

Bargaining seems to affect directly and clearly administrator authority by controlling or diminishing it (Corwin, 1970; Kerchner et al., 1979). The union and bargaining structure have the effect of establishing a dual authority system within which the manager can be challenged or overruled. This has caused administrators below the central office level to move to bargaining units and unionization of their own at an increasing rate (Cooper, 1980).

Whether bargaining leads to greater or lesser formalization and centralization of school operation seems to be an open question. Surely the potential for more rules, rigidity and formality is there. But there is also evidence of growing ambiguity (Kerchner et al., 1979), more potential for disruption (Cresswell & Simpson, 1977), and thus less formalization. This question seems to require further study.

Decision Making

Bargaining itself aside, union activity seems to lead to greater participation by school workers in decision making in school affairs (Belasco & Alluto, 1969). Participation per se, however, does not seem to be the objective; too much participation can lead to dissatisfaction. As noted above, the objective seems to be more protection and autonomy.

The contract, however, does often establish rules for evaluation, discipline and handling of grievances. This changes the way internal decisions are made and changes the power relationships of those involved. In general, participants in organizational decisions seek to use the decision mode which gives them the best advantage (Pfeffer, 1977; Pfeffer & Salancik, 1974). We would, therefore, expect teachers to attempt to increase and expand the decisions made in bargaining and bargaining-controlled settings, and that these attempts would be resisted by boards. This is, in fact, observed (McDonnell & Pascal, 1979; Kerchner et al., 1979; Perry & Wildman, 1971). Studies at the building level show that the existence of the union structure and negotiated grievance procedures does change relationships between teachers and administrators (Glassman & Belasco, 1975; Goldberg & Harbatkin, 1970). In general, these changes reduce the decision-making power of the administrator, but this is not universally so.

Decision making at the school board level may be affected. Although concrete evidence of this is sketchy, the tendency is clear. Peterson's (1977) study of Chicago showed the union as a major interest group in school and city politics. Cronin (1973) and Rogers, (1968) have similar evidence for other cities. Colton's (1979) study of the effect of strike conditions on administrative decision making shows several deleterious results common to high stress situations. The studies of budget behavior cited above (p.26) show the impact of union participation on these other school decision processes. Union-related conflict may be a component in school board elections, especially where there is ideological opposition to bargaining

among incumbents, leading to a change in membership (Kerchner et al., 1979). Overall, it seems safe to say that the presence of a union actively engaged in bargaining is likely to have some effect on virtually every major decision made in a school system. Little, however, is known about the details of how outcomes are determined or patterned.

VI. IMPACTS ON TEACHING AND LEARNING

By affecting the bargaining relationships and the outcomes thereof, labor policies may have some indirect impacts on the teaching and learning process. We found no studies which attempted to examine this question directly. Some inference about the possible impacts must, therefore, be gathered from other research about bargaining and bargaining-related subjects which may show some connection with the teaching and learning process. There is little theoretical basis for speculation about the direction these effects might take, but there is an abundance of rhetoric about the possible positive and negative impacts of union activity on the schools. These provide a useful basis for discussing the available findings. Some of these assertions have already been dealt with: teacher professionalism and militancy are not incompatible; union activity does not necessarily lead to less innovation or distortions of public spending. We will now consider what effects bargaining, and by implication, bargaining policy may have on teacher and student outcomes.

Teacher-Student Contact

The most obvious and direct place where bargaining may affect the schooling process is the amount of time teachers spend with the pupils, either in terms of the length of school days and years, or in the number of pupils among whom the teacher must divide his or her time. Both of these elements of contact may be subjects of bargaining and, thus, be mechanisms of policy or bargaining effects.

The most direct way that bargaining may change the amount of contact time is through a strike. Most strikes do not, however, shorten the school year as much as they delay its beginning or change the distribution of days. There have been few studies of direct strike impacts on achievement. Holmes (1978) found little impact on grades. A study following a Chicago strike found somewhat higher achievement. This points up a serious design problem with these studies, i.e., they are limited to case studies. These studies lack controls for other contributing factors and should be interpreted with caution.

The ways teachers allocate their time may be affected as well. Pierce (1979) reports some bargaining-related reduction

in class contact time, but the amount is small. Kerchner et al. (1979) found that teachers tend to seek greater autonomy in time allocation decisions through bargaining and tend also to demand extra pay for extra duties and consider leave and other time-related policies as vested rights. These latter tendencies can have some impact on reducing the amount of teaching time but no statistical evidence to support this is available from Kerchner et al. (1979).

In a direct attempt to assess bargaining impact on achievement as well as class time allocation, Pierce (1979) used a production function approach, based on determinants of education achievement, with bargaining as a variable. He found some evidence for the existence of a positive impact in some states, but the pattern is not consistent.

The lack of consistency in these results is not surprising. In their review of the achievement determinants literature, Bridge et al. (1979) found some evidence of positive effects on achievement, of more teaching time and of longer school years. But these results were not consistent either. They found that more time allocated to specialized teaching contributed to higher achievement, as did less time spent on discipline.

The other major determinant of teacher-pupil contact time is class size. Class size is clearly an important bargaining issue. But the consequences are mixed. McDonnell and Pascal (1979) report that gaining class size clauses tends to go along with higher salaries and they interpret this as evidence that teachers do not trade off one for the other. However, the other studies of class size impacts and elasticity (p.12) show some increase in class sizes associated with bargaining and salary increases.

Neither, however, is likely to have much effect on achievement. The class size clauses do not necessarily change the actual size of classes. And the magnitude of class size effects reported elsewhere is not large enough to suggest achievement impacts (see Bridge et al., 1979). In fact, the evidence on the importance of class size per se is not all that consistent itself (Bridge et al., 1979; Averch et al., 1976). There is little basis to conclude that bargaining or related policies have had any effect on achievement through class size changes.

Teacher Characteristics

Bargaining may affect teacher characteristics through changes in salary and other policies that encourage certain types to remain in teaching and others to leave or not begin. Bargaining effects on salary schedules, retention and seniority policies and decision participation would suggest that overall it encourages greater rates of retention, therefore higher experience and education levels, somewhat older, more militant teachers, and perhaps higher proportions of males. But union activity and bargaining are not the only factors which can lead to these changes. Primarily, the decline in enrollment and consequent reduction in hiring of new teachers has resulted in a general increase in the average age and experience of the teaching force in the public schools. It is not currently possible to determine what effect, if any, collective bargaining and labor policies have had in these changes. If we are willing to assume that they do have some effect in the expected direction, then the direction of concomitant effects in the achievement of pupils may be estimated.

In such estimates, we see that the results are mixed in terms of expected effect on achievement. Amount of education for teachers has a mild positive relationship with pupil achievement (Bridge et al., 1979). The same is true for experience, but less so as the amount of experience increases past five years. Degree of maleness in the faculty is also positively related to achievement, as is verbal ability (Bridge et al., 1979). The quality of the teachers' education is also positively associated with achievement, as measured by the prestige of college attended, recency of study, and whether it was a four-year institution or university. Of these characteristics, bargaining can be said possibly to encourage higher education and experience (due to salary schedule effects and seniority). The proportion of males in the teaching force might also be increased since opportunity costs for males are higher. Higher teaching salaries means proportionately more men might choose to teach. However, bargaining is not conceivably related to the nature of a teacher's education or where it is obtained.

Teacher verbal ability has fairly consistently been shown as positively associated with achievement (Bridge et al., 1979). But this also has no apparent connection with union activity except possibly by the same mechanism that determines maleness (i.e., persons with higher verbal ability, males being in greater demand and requiring higher salaries to enter teaching). But since the union-related salary effects are so small,

it is hard to postulate a strong secondary effect on such characteristics as maleness and verbal ability unless the supply of elasticity for these characteristics is very high.

There may be, however, another mechanism of effect, not yet understood, between salary and achievement. The studies using this variable show a fairly consistent positive effect (six positive, none negative, nine not significant; Bridge et al., 1979). The collinearity between salary and wealth or economic status of a school district is high, although controlled for in these studies and this may account for some of the connection. But the nature of the link is yet to be fully described.

Teacher Morale

Job satisfaction is clearly related to attitudes and actions toward union activity (Cole, 1969; Hellriegel et al., 1976; Corwin, 1970). Satisfaction also appears to be linked to levels of participation in decisions, one of the central objectives of bargaining (Belasco & Alluto, 1969). If low morale and dissatisfaction are causes of union activity, then it should follow that successful union activity should increase morale. Unfortunately, this has not been systematically studied. Teacher morale is at least as complex a subject as pupil achievement, but as yet no model of determinants similar to those for achievement effects has been developed for this subject. In the absence of such models, there is no systematic basis for inferences about whether bargaining has improved morale. Indirectly, the evidence points in the opposite direction. The time of greatest growth in bargaining activity, the mid- to late sixties, has seen a great drop in teacher morale (Doherty, 1979). With the overall decline of support and confidence in public education witnessed of late, it may be that the gains from bargaining have kept morale from dropping even further. That, however, is quite speculative. Other than such speculation, we have no basis for assuming positive or negative effects of bargaining on morale.

Methods of Assessing Teaching-Learning Effects

The measurement of school effects is plagued by all of the analytical problems of wage determination studies, with several more of its own. School outcomes are many, often vague, unspecified or controversial. Achievement test scores, even if they are accepted as valid measures, have serious

statistical and conceptual shortcomings. Such difficulties aside, the amount of variance in achievement accounted for (in regression-type studies) by school-related variables is typically quite small (e.g., less than 10 percent). Interpreting these effects is clouded by lack of agreed-upon models, and by multicollinearity (see Bridge et al., 1979; Schneider, 1980). There is even a debate concerning feedback and the use of non-recursive models in this field of study, much like that in wage determination work.

It seems quite premature to try to mix the two fields. The assessment of bargaining effects should concentrate on connections with school operation characteristics which can be linked to contract administration or other more concrete elements of the labor-management relationship. That is difficult enough in its own right. Similarly, the study of achievement and other outcome determinants should proceed with its own models and methodological agenda. When both have been sufficiently developed, especially in the specification of the characteristics of bargaining as a phenomenon far beyond a simple yes-or-no, then some attempts at combined analysis may be more fruitful.

VII. SUMMARY AND CONCLUSIONS

The major methodological and theoretical problems have been discussed in some detail through the review. In this section we will summarize and attempt to integrate some of those problems into an overall assessment. Before getting directly to that point, however, it is useful to emphasize that the problems and issues encountered go far beyond a narrow concern for data acquisition, statistical methods or any particular policy issue. There are fundamental theoretical problems involving definition, modeling, validity and inference, which remain unsolved.

Definition

Fundamental to any method is the definition of what is to be studied, and for quantitative work, the construction of variables and measures. Most of the work examined is in difficulty at this most basic level. Simply stated, there is little developmental work and small ground for agreement about how labor policies are to be defined and characterized. Most studies use only the most simplistic specification of policy in terms of gross categories and dummy variables (e.g., presence/absence of a bargaining statute, presence/absence of strike penalties, etc.). As a result, the prospect of observing some impact is greatly reduced, and if by some good luck an impact is observed, we are left with the question: "Impact of what?"

Even those studies which attempt to construct a more detailed and comprehensive representation of the policy context stop with the statute and some ad hoc index reflecting its clauses. This is, of course, an improvement over the dummy variable approach, but leaves still much to be desired. The labor policy context is clearly much richer and more complex than the statutes themselves, as difficult and detailed as some of them are. In the question of scope, for example, Edwards (1973) points out: "Notwithstanding the importance of the New York Court's decision, most of the progress in defining the scope of bargaining in the public sector is an accomplishment of the state labor boards" (p. 918). This observation is strongly corroborated by our reading of the behavioral literature and interviews with state officials. Yet nowhere in the statistical studies of policy impacts is this fact reflected for scope, and only in the most rudimentary ways in the studies of impasse resolution and other policy areas. It is not so much that researchers have ignored the task, but the necessary techniques and definitions

have yet to be developed.

There does exist some agreement on the basic divisions into which the main elements of policy fall, i.e., recognition and unit membership, union security, scope, grievance procedures, impasse procedures, strike policy and administrative arrangements. This is a start. The variety among states within these categories is very large. Within each state, the level of detail varies across categories and the information within them changes continuously. This complexity must be systematically characterized and recorded before any comprehensive assessment of elements of impact can be examined.

If policy is the intervention point at which impact is to be assessed, then collective bargaining and labor management relations at the local level are the intervening variables. The problems of definition here are at least as serious as those for the policy area. Again, in virtually all of the statistical studies bargaining is either a simplistic presence/absence dummy variable, or a simple index or classification scheme (e.g., no contract/simple contract/comprehensive contract). In one sense this is even less satisfactory than the dummy variable approach used for policies. Bargaining takes place in literally thousands of local school systems. The possibilities for variation are much greater than for policy among 50 states. So the constriction of the variance into such a narrow and opaque range is much less justified. The picture is somewhat brighter in those studies in which a composite of two or three variables is used to reflect some of the complexity of the local situation. But the composites are far from adequate reflections of the many-faceted characteristics of bargaining relationships in school systems. This becomes quite clear in the case studies (e.g., Perry, 1979; Cresswell & Simpson, 1977). But the richness of detail is lost in the quantitative studies of impacts. The same question ("Impact of what?") remains.

As if these definitional problems were not enough, the question of "Impact on what?" is unanswered as well. Here the basic dimensions are a bit better defined, i.e., wages, scope, achievement, class size, etc. But beyond that the ambiguity is quite serious. As we have noted, comprehensive measures of compensation and working conditions do not exist. The same is true for scope and school outcomes such as achievement, client satisfaction, teacher morale, efficiency, etc. Within the narrow framework of achievement testing there is some solid ground. Enough work in that area has been

done so that the main methodological issues have been addressed, if not solved, and the most basic definitional problems are known and at least partly solved. Even at that, the level of controversy over what constitutes appropriate and valid measures of school achievement rages and the question of why scores decline remains at least a partial mystery. Moreover, much recent micro-level research on classroom activity shows that measures of school resources and characteristics at gross levels are not likely to produce useful understandings of schooling effects. The small behavioral units of analysis seem the most promising.

Along with these more technical measurement problems of impact assessment are deeper ones of methodological assumptions. Some of the most interesting possible impact areas are not outcomes measured as achievement, but changes in the social structure and decision-making processes of the school operation. The characteristics of these processes cannot be measured in the same way a test can be scored. Not only are the data different, but the underlying methodological assumptions about objectivity and scientific method come into question. Decisions, negotiations and other central conceptual components of organizational studies are cognitive processes, not overt behaviors. They can be thought of as depending as much on the purposes and constructed social realities of the participants as on the overt behavior which some outsider may observe. To deal with these phenomena, we would argue, some attention to the qualitative and phenomenological approaches to impact studies is required (see Wilson, 1977; Van Maanen, 1979). These ethnographic or participant-observation modes of research require different approaches of analysis and reporting styles than the hypothesis-testing and experimental approaches common to policy analysis in the econometric traditions. For the definitional problem, when decision processes and social structures are the point of impact, the definitions should take into account the qualitative research perspective and methods.

Aggregation Problems

Aside from the definition difficulties described above, the aggregation necessary for policy studies involves four analytically distinct units (or levels) of analysis:

1. the state
2. school district
3. operational subcomponent of the district (e.g., building, classroom, labor-management relations system)
4. individual (teacher, administrator, student, etc.)

They are analytically distinct for our purposes in these ways. The state is the source of policy, and policy is intended to be uniform throughout the state (although in practice, this is rarely possible). The district is the operational unit for labor-management relations. Bargaining and contract provisions, union membership and central outcomes (e.g., salaries) are district-wide. The operational component of the school system is the primary service delivery unit; the district per se does not teach, bargain, etc., sub-groups within it do. So operational impacts are to be observed primarily at this and the individual level. The individual level is necessary to collect and at the same time analyze data for outcomes (achievement, salary, etc.).

Because these units are analytically distinct, aggregation across them in a reserach design causes basic difinitional problems. Achievement, for example, is most correctly an individual phenomenon. The aggregate (usually an average) is an analytical convenience, not a theoretically meaningful entity. The same problem cuts across each level and each different set of variables. For policy studies, cross-level designs are essential; that is, inherent in the concept of policy impact. We do not have for this, or other policy areas, a well-developed rationale or system of criteria on which to base the treatment of aggregated data across this sort of analytical difference. In the absence of such a system, the choices made by researchers are largely ad hoc. As a result, this rasises the serious question of whether findings (or lack of them) are artifacts of aggregation or reflections of some phenomenon. Based on these analytical distinctions, we plan in the second section of this project to begin a basis for such a rationale.

Analytical Problems

The central analytical problem for virtually all the studies of labor processes and policies is the lack of adequate causal models. Without these, the specification of empirical models as the basis for statistical procedures is ad hoc, or rests on uncertain theoretical grounds. Part of the uncertainty involves the interactions between policy and action in longitudinal terms. As a consequence, the statistical models used are often not appropriate. Statistical models are used for cross-sectional studies of dynamic systems which most probably have substantial feedback. Thus, the estimates of parameters are suspect. Important differences in findings are often seen when recursive and and non-recursive models are compared, suggesting this is an actual as well as hypothetical problem. Consequently, any analyses based on recursive models must be viewed most skeptically.

Time series or quasi-experimental designs are an alternative approach. They are used in some important cases, but infrequently. Too little attention has been paid to the problems of constructing appropriate variables for time-series designs: lagged variables or change scores. Without basic theoretical work on these metric questions, the dynamics of the systems cannot be statistically explored.

Development of the theory necessary for the solution to these analytical problems is hampered by the lack of rigor in much of the related qualitative research. The lack of methodological rigor in most qualitative studies is most distressing. An implicit assumption seems to be that clear exposition of method and analytical techniques is necessary only when numerical data are to be treated. In fact, these matters may be even more important for qualitative work. However, interview techniques are not discussed, nor are control procedure, methods for analysis of interview and observational notes, validity checks, etc. It is not clear from most reports whether the researchers used systematic techniques or not.

Some of the scholars call for a synthesis of theory building and policy impact studies (e.g., Kochan, 1977, Feuillo, 1979). But they give no attention to the analytical or conceptual work necessary for the synthesis of methods across the existing differences. Given the dearth of adequate theory, that should be a major research priority.

It is perhaps fitting to end on this note. We see the central problems of method for studies of this type to be intimately related to theory and analytical assumptions. If the main problems of theory and analysis can be successfully addressed, most of the more technical matters of aggregation and measurement can be dealt with in a straightforward manner. All the difficulties will not, of course, evaporate. But the intellectual foundation wich is now so full of gaps would be better able to support a much more substantial methodological structure.

PART TWO: RECOMMENDATIONS FOR POLICY RESEARCH

I. POLICY ISSUES AND RESEARCH

The issues and findings assembled in this review relate directly, and not surprisingly, to the central tension or dilemma in public policy for public sector bargaining: employees' rights versus sovereignty. In those states where the bargaining rights of public employees are not recognized, the problems of constructing policy to resove the dilemma is reduced to the basic political question of whether or not to recognize bargaining rights.[10] But in the remainder of the states, employees' rights and sovereignty are competing claims on which the details of labor policy are fashioned and for which some degree of balance and fairness is sought. The underlying tension of this issue is translated into specific questions of recognition, scope of bargaining, strike policy, impasse resolution techniques, and the related details of statute and legal decision. Thus, any examination of the impact of these specific policies must refer in some way to the tension between employee rights and sovereignty.

This form of speculation is nonetheless necessary in discussing the issues in labor policy research since so little of that research deals directly with the impact in terms of this central tension. There is in none of the research cited the clear development of a model of sovereignty or employee rights, although some parts are present in the work of Perry and Wildman (1970), Perry (1979), Derber and Wagner (1980), Kochan (1977) and Feuille (1979). Instead, where policy is evaluated, the conclusion rests on the intermediate or instrumental impacts, such as reducing strikes, narrowing the scope of bargaining, or the results of arbitration. The absence of a theoretical and empirical base for conclusions about rights and sovereignty is, therefore, the main concern on which we wish to elaborate in this discussion of research and policy issues.

To do so it is necessary to distinguish between a legal model of rights and sovereignty and a behavioral one, the latter being the one of interest to us. A legal model defines the nature of employee rights and government sovereignty in terms of principles of law. That is, it says what the rights and details of sovereignty are, for example, what delegated powers a local school board may or must not submit to negotiated agreement with employees. A behavioral model of sovereignty would account for the way in which the various elements of sovereignty are affected by the operation and governance of school systems, for example, why a school board does agree (or not agree) to negotiate some particular element of its delegated powers. The nature of the law would, presumably, be only one element of that model, with local political and organizational concerns having important parts. The same sort of reasoning would apply to a model of employee rights.

The full development of such a model is beyond the scope of this paper. Rather, we use the idea as a reference for identifying research and policy analysis needs. We can begin to describe what elements such a model would require, what issues would be formost candidates for study, and how the concept can lead to specific research designs and projects.

II. RESEARCH COMPONENTS

Based on the research reviewed above and the requirements of developing a model of impacts, we have identified three main components:

1. methods for policy description, from the most general statements of statute to the operational details of implementation.

2. improved means for the description and explanation of the mechanisms of policy impact, especially on governance.

3. better understanding of the mechanisms through which policy impacts on governance and operations produce influence on education outcomes.

The research and methodological issue discussions to follow are based on these three themes.

This is a selected list of components for research effort, reflecting a setting of priorities based on our findings in the review of research and our judgments about the needs of the field. Our primary concern in setting these priorities is the development of a knowledge base about the nature of policy and the mechanism of impact. This concern transcends particular issues, such as strike penalties or scope of bargaining. The issues as legal and political entities have been examined in great detail, with much attention to the policy problems, alternative courses of action, and impacts in terms of legal decisions, strikes, contract language, and salary levels. Thus, if we want to know the pros and cons of, say, alternative forms of binding arbitration, there is much knowledge and literature on which to draw. If we ask the next question: Do these policies affect bargaining outcomes?, we have some useful but indirect evidence. If we press further to ask by what means the policy works and how it is viewed by those on whom impact is intended, there is very little on which to base an answer. To ask policymakers to design and improve policy in this knowledge-poor situation is a bit like asking a pharmaceutical chemist to make a drug without detailed knowledge of the internal organs and biochemistry in which the drug is to act. The chemist runs quite a risk of hurting the patient.

In this situation, it seems ill-advised to focus scarce research resources on too detailed studies on specific issues. Instead, attention should be concentrated on the fundamental processes and descriptive methods needed to develop clearer understandings of the "vital organs" of labor policy operations. These "vital organs" are, in our opinion, reflected in the three components of research outlined above and detailed below.

III. POLICY DESCRIPTION

Through our review of the literature we continually found inadequate treatment of the nature of the policy itself. Where there was attention to systematic description of policy particulars, it was almost always the statute which was the focus of attention. That is necessary but certainly not sufficient. New approaches are needed to deal with the problems of accurate and detailed description of state labor policies.

Structural descriptions based on statutes are the most prevalent, but still crude (see Kochan, 1973; Gustman & Clement, 1978; Cresswell et al., 1978). They lack an explicit system for interpreting language and for assigning weights to elements of statutes. Without these, we have no way of insuring comparable interpretation of language across states or testing the reliability and accuracy of weighting schemes. There has been some attention in the legal literature to what is called jurimetrics, systematic methods for quantifying statutes. This work has not, however, been influential in the labor studies field.

The structure of policy beyond the statute has received very little attention. No one has attempted a comprehensive examination and quantification of the decisions of courts or labor boards and agencies. We know that these are central to the policy structure. But they are apparently too numerous and too complex for current methods of analysis. Within states, court and board decisions are collected and published. And some interstate sources for the texts are available. What we lack is a means for organizing and analyzing this large body of information into a system which leads to categories comparable across states and to indexing and weighting schemes. This is a problem which would require the combined effort of labor and legal scholars and considerable innovation in methods.

Part of the problem in using the existing sources of court, board, and agency decisions is that the sources are designed for use by attorneys. The conceptual structure is directed toward litigation and legal analysis rather than behavioral models. The categories are therefore not necessarily suited to the design of research. Part of the research agenda for labor policy studies should be the development of new analytical schemes and categories which are useful in interpreting legal information and relating it to bargaining and governance behavior.

A similar analytical need exists for the rules and procedures used by state labor boards and agencies. These agencies do the bulk of the work in interpreting and implementing labor policies. In our preliminary examination of teh operation of these agencies we have found that their rules, practices, and style vary greatly from state to state. We are not sure how these variations affect the impacts of the policies themselves. Before such a study could be undertaken, we would need a means of characterizing these variations and taking them into account. There is now no accepted way for this to be done nor is there a body of literature on which to base this kind of work. (Helsby et al. 1979) is a start in this direction but it is not designed as a research document; it merely provides an information base about state policy and practice.[11]

IV. POLICY IMPLEMENTATION PROCESS

Beyond the structures of rules and practices for state labor policies, there are the interactions between the state and local school systems. These interactions are, we assume, the main mechanism of policy implementation and of impact. The interactions consist of disputes referred to the state agencies (courts, boards, etc.), use of state-appointed mediators, fact-finders, and arbitrators, as well as many other sorts of meetings and exchanges of information between the levels. The relationship between the state policy level and the local school system is a dynamic one, with influence moving in both directions. State agencies confer with local officials on policy and procedures. Local officials make recommendations concerning policy changes. Considerable formal and informal negotiations occur in the process of dispute resolution within the agencies themselves. The same is true of local court actions concerning strikes and impasse resolution. There has been virtually no attention to the behavorial analysis of these interactions. Consequently, little is known about the process and the consequences of the process for either the implementation or formulation of policy. Because so little is known, basic descriptive and qualitative research is indicated. A systematic descriptive and classificatory knowledge base is needed on which to build surveys and quantitative studies.

A complete policy impact model should include provision for policy acting as a constraint or decision rule for local behavior without an actual interaction with the state agency or court. That is, a local decison or action may be influenced by what the local officials <u>believe</u> the policy to be or how they expect it to be enforced, rather than by any particular action taken by someone at the state level of government. How these beliefs and perceptions are formed as well as how they operate in the decision-making process are important elements in the policy impact mechanism. The study of these belief systems has not been a part of labor policy studies, although the use of ethnographic and other

qualitative methods for similar purposes is found in other areas of management studies (see Van Maanen, 1979). For this topic, studies should be directed to descriptive study of the cognitive systems used by managers and others involved in labor-management relations, especiably as those systems involve how the state policy structure is shaped and operative for local affairs.

Along with the studies of perceptions and cognitive systems, observation of documents and local behaviors should be part of the agenda. Contract language, budgets, teaching schedules, etc., are artifacts of the local governance and bargaining processes. By examining how well they fit within the policy framework, we can gain some insight into the mechanism of policy impacts. However, there is little knowledge about how well these local actions and decisions, such as contract language, conform to state policy. The only evidence is from a few narrow studies and from cases which come to the attention of courts or labor boards for resolution. We have no way of estimating the degree to which these visible disputes or deviations from policy are representative of the great invisible bulk of labor-management proceedings at the local level. Some survey work is called for on involving sampling of contracts and specific decision situations. Sample data would provide a baseline estimate of the contours of local activity vis-a-vis state policy. More detailed behavioral studies could then be designed to deal with particular problem areas, such as contract clauses exceeding the legislative and/or judicial scope of bargaining or unreported unfair labor practices.

An important aspect of the connection between contract language and policy structures is the question of enforceability. The presence of an illegal clause in a contract is not prima facia evidence of an error on the part of the bargainers. One side or the other may have agreed to the clause in return for a valuable concession, with the full knowledge that the clause is not enforceable. Thus, intent and overall bargaining strategy is an integral part of the mechanism of policy impact. These nuances of bargaining processes are not revealed in surveys or documentary studies.

V. POLICY AND OUTCOMES

Considering the impact of policy on education outcomes adds another level of complexity to the study. Certainly, education outcomes are affected by a great many factors besides labor policies and labor-management relations. To estimate the independent effects of labor policies requires some means, as we have noted, of taking into account the other important factors. Comprehensive models for this purpose do not exist. Before they can be constructed, a large number of specific elements of the knowledge base must be assembled and understood. Therefore, rather than examine the entire spectrum of possible policy-outcome links, we

are concentrating on a few of the central research questions and policy issues.

They fall under the general headings of:

1. finance and resource allocation
2. teaching process
3. organizational processes
4. local politics and community support.

Within each of these areas we will describe research issues of central importance to the understanding of policy impacts.

Most states in which bargaining is legislated require bargaining on wages, benefits, and some groups of working conditions. These have direct and substantial impact on the local finance arrangements. Available studies suggest that bargaining per se does not have a substantial distorting or inflating effect on local expenditures. However, these studies do not take into account adequate models of local expenditure decision making. Full costs of bargaining are not taken into account, nor is the full value of fringe benefits and other related concessions (e.g., leaves, aides). Research is needed which takes into consideration the full range of local budget decisions and bargaining-related allocations. This should include class size, bargaining costs, fringe benefits costs, actual as opposed to budgeted expenditures, and intra-district patterns of expenditures which may be related to bargained wage conditions or promotion and transfer policies. The impacts of barginaing on these resource allocations can be assessed two ways: (1) quantitative methods which control for other expenditure determinants through the use of an appropriate model, and (2) qualitative studies which examine the decision-making process. Both are needed, although the former is more difficult due to the low level of development of public expenditure models for internal resource allocation.

Class size impacts pose a particularly important and difficult analytical problem. Sizes can be influenced by a host of organizational and technological factors. Taking these into account in a quantitative study is beyond the current state of the art. In addition, the actual measurement of class size is complicated by the variations within school systems. An average does not reflect the range or distribution; maxima do not describe teachers' experience or costs. The presence of a class size clause does not in itself indicate any particular impact on resource allocation. Considerable analytical work is needed to determine appropriate class size measures to employ in budget and bargaining studies.

A similar need exists for fringe benefits. Estimates of the total costs of fringe benefit packages are quite difficult, especially when long-term pension costs are involved. For inter-district and interstate comparisons, some standard cost definitions and algorithms are needed. Data from Elementary/Secondary General Information Surveys conducted by the National Center for Education Statistics may allow preliminary study but more detailed local budget data are necessary for accurate estimates.

Flexibility in resource allocation may also be affected by contracts and the demands of negotiations. The ability of managers to change budgets may be constrained by contractual commitments or mandated procedures. The need for secrecy or keeping to a contract deadline may also constrain the budget process and the participation of administrative staff or community members. This element of bargaining impact may be examined through survey methods or field interviews and observations. A quantitative model of budget flexibility or discretion, employing a time series design, would also be appropriate.

Along with flexibility, patterns of participation in financial decision making may be affected by bargaining and related policy. Financial information is critical to the bargaining process. Policy regarding confidential employees and exclusion of managers from bargaining units involves access to and participation in budget determination. Budget decisions may be less accessible to staff and public due to control of information for bargaining purposes. Similarly, "hiding" money for concessions to unions may be a necessary part of management budget construction. Each of these aspects of participation has implications for affecting sovereignty. Some have been examined by qualitative, process-oriented research methods. But more work of this kind is needed to develop comprehensive models of how bargaining may constrain the local resource allocation decision process.

School district revenues are an integral part of both the budget and bargaining processes. Their availability and timing may strongly affect the process of internal resource allocation, and the demands of unions may be translated to pressures on local and state revenue sources. This can affect local discretion tax rates as an integral element of sovereignty. The state of the art in expenditure determination studies is, we believe, sufficient to support more detailed work on the impacts of bargaining and related policies on the revenue flows to school districts as well as the tax rates and tax effort of local systems.

Teaching Process

While the models that relate financial decisions to the

bargaining arena may be poorly developed, those related to the teaching process are essentially nonexistent. Since teaching practices and curriculum are seldom the central subject of bargaining or labor policy, some attention has been given to those aspects of teaching which do relate to the bargaining and resource allocation decisions.

Labor agreements, budgets, and other organizational structures set the framework in which teaching and learning occur, but they do not fully determine or control the process. For example, the contract may require teachers' participation on a committee that chooses a math program, for which budget is allocated and administrative arrangements made. But the actual use of the program is determined by the individual teachers and perhaps immediate supervisors. Existing research shows us only that the linkages between the structures that are easily observed (e.g., contracts) and the process itself are quite loose. It is clear that there are major labor-management tensions involved in these linkages. The tensions are related to the central rights/sovereignty issue. Therefore the impact question can be roughly described in terms of these tensions.

With respect to teaching, the tension appears to be one of autonomy for teachers and other professions versus supervision and control by administrators. Thus, the autonomy and control aspects of labor-management structures reflect the basic issue of rights versus sovereignty. Definitions and mechanisms of autonomy and control are necessary elements of research to assess impacts in this area. Since the exercise of control or the presence of autonomy can only be inferred from structures or contracts, behavioral or process-oriented examinations are necessary to substantiate the validity of such inferences. Surveys and/or interviews of the perceptual and attitudinal bases of autonomy and control are also in order. As above, the theoretical foundations for research of this type could profit from a larger body of research describing the administrator-teacher interaction. The work of Lortie (1975) and Wolcott (1973) are good examples.

Organizational Process

The basic issue of employee rights versus government sovereignty can be found reflected in the tensions revolving about teacher participation in organizational decisions. Bargaining and related policy clearly have the potential to increase the degree of decision participation and change the organizational structure.

We have reviewed some evidence of the extent of this happening. Much of the conflict over scope of bargaining is a

manifestation of this tension. Central to the matter of policy impacts is not, therefore, whether bargaining policy can expand teacher participation, but rather how that participation is related to employee rights and sovereignty. However, there is also some evidence that participation per se is not central to employee concerns, nor does it necessarily lead to changes in management's power or discretion.

Another way to put the question is whether expanding scope of bargaining represents an expansion of employee rights or contraction of management rights. Decision participation or expanded scope of bargaining may be merely an instrumental objective of employees (especially teachers) to protect or expand their autonomy. The evidence we have reviewed is not conclusive in this regard. Nor does it indicate which elements of decision participation are more symbols of teacher professionalism than effective mechanisms for determining school affairs. We are unsure whether the presence of bargaining and related state laws changes the substance of school operations (e.g., teacher time allocation, teaching process), or merely the appearance of the decision process. More longitudinal work such as Perry (1979) and Derber and Wagner (1979) is needed to provide an answer to this part of the process. In particular, attention should be paid to negotiated decision mechanisms, both as an element of policy (mandatory, permissive, etc.) and as a part of the school governance mechanism. Such devices as school-level union/management committees, curriculum committees, and other decision participation mechanisms often appear in contracts. They have not been the subject of direct study. Detailed attention to the operational effects of these mechanisms is recommended, with special attention to the degree to which they constrain or direct the management and policy making of the school system.

Local Politics and Community Support

One main element of the sovereignty of local school systems is the degree of citizen participation and influence in governance. While the general process of citizen participation has received considerable attention, the place of collective bargaining in that process has been largely ignored.[12] Some states have provided for so-called "sunshine" or "fish bowl" laws, requiring a degree of openness for the bargaining and public access or participation. These provisions have yet to be systematically studied. Informal observation and opinion suggest that their impact is small. Other aspects of citizen participation and local support remain to be examined. Since this area is such a complex one and such little work has been done, we have not given it much attention.

The existing literature on citizen participation in

education governance (cited in Kerchner, et al., 1980) contains alternative models of the process. These are a roughly adequate base for continued empirical study. The most fruitful directions appear to be direct attention to the effects of "sunshine" provisions in state policy and the politics of employee union participation in school board elections. These are two fairly well-defined subtopics, the study of which should reveal much about the overall impact of bargaining policy on local school politics.

VI. SUMMARY OF MAJOR RESEARCH RECOMMENDATIONS

I. Models of Policy Impact: Studies of school goverance discretion and its conflict with employee rights. This should include:
   A. Behavioral (as opposed to legal) models of the exercise of local sovereignty and discretion, particularly in budget and personnel matters.
   B. Behavioral models of the nature and exercise of employee rights.

   These topics include attention to the nature of local labor-related decision-making processes. Research in these areas would include improved expenditure decision making and wage determination models based on behavioral studies of the process. It would also include attention to total compensation and related labor costs and the importance of teacher autonomy to the decision making and governance at the local level.

II. Improved methods of policy description, both conceptual and methodological. These would include:
   A. Analysis of statutes and regulations from the perspective of rights and sovereignty impacts (as above).
   B. Analysis of administrative processes in state labor agencies and their interaction with schools.

III. Models of Policy Administration
   A. The mechanism of policy impacts is intimately related to the mechanism of administration and policy development. Studies of administration at the state level should include:
      1. Role of local and state participants in the development of policy.
      2. Internal decision making of labor agencies and related government actors.

B. Local administration process studies should focus on the actions and perceptions of the local participants in governance and labor-management relations, including:
   1. Examination of their cognitive structures and how they apply to actions in the administration of schools and labor relations.
   2. Examination of the fit of local practices and agreements with the actual and perceived policy structure.

Research Feasibility

An assessment of the feasibility of the research recommendations presented here depends on a clear idea of the meaning of the term. For our purposes we consider feasibility to be composed of three main parts:

1. Availability of analytical resources -- adequate theory, concepts, and analytical methods on which to base the study.
2. Availability of informational resources -- the existence and access to the data necessary to develop and/or test generalizations.
3. Availability of operational resources -- personnel, equipment, funds, etc. necessary to perform the research tasks.

We will confine our discussion of feasibility to parts 1 and 2, since the availability of operational resources is a matter of research funding policy. That is, if a particular piece of research is feasible from the point of view of analytical and informational resources, the question of whether the study is done rests on allocations of resources to the task, which is not within the scope of this review.

The availability of these resources is a matter of degree. We therefore considered feasibility in the same light. That is, research has varying degrees of feasibility, rather than a simple feasible/infeasible dichotomy. In reviewing the research recommendations presented here, we have therefore chosen to rate their feasibility in terms of a range from high-to-moderate-to-low, based on our subjective assessment of the availability of the necessary resources. This assessment is based on our reading of the available literature and a consideration of the problems we and other researchers have encountered in obtaining access to data. The ratings are therefore somewhat subjective and may vary from one researcher to another.

With regard to the analytical resources, two somewhat distinct types can be discussed: theoretical and conceptual as

one and methodological as another. By making this distinction we acknowledge that even though the basic ideas for a study may be sufficiently well developed, the methods necessary to complete the work may be absent. For example, our models of school resource allocation decisions recognize that the decisions of individual teachers about the allocation of instruction time are critically important. We can define and conceptualize these allocations, but their accurate measurement is quite difficult and fraught with operational problems. In most cases, however, it seems that the inadequacies in both types of analytical resources are closely related, and methodological development depends on advances in theory.

With regard to informational resources, their availability may be affected by at least three kinds of constraints:

1. Theoretical: We have inadequate definitions and concepts to know what information is needed or how to obtain it.
2. Economic: Resources are unavailable within the research site to provide the information and cannot be provided externally.
3. Political: Access to information is restricted due to the political or organizational objectives of one or more actors in the research site.

We see the theoretical limitations as part of the first type (analytical) and will treat it together with that one. The other two are assessed separately below.

The results of our estimation of the feasibility of the recommended research is presented in Figure 7 (below).

Research Priorities

Recommendation of research priorities from among the topics recommended requires more than a judgment on feasibility. Some criteria of need or value must be applied as well. We have applied two on which to base the recommendations to follow.

The first grows from a notion of a logical sequence in the overall research agenda. For example, it makes little sense to attempt to assess the degree of fit of practice with policy until an adequate description of policy is at hand. Adequate policy description thus should come at the beginning of a sequence. From that point we prefer a sequence proceeding from understanding of local processes toward the state level of analysis, since impact is a local phenomenon. Therefore local impact mechanisms should be studies closely allied with the nature of local impacts in terms of sovereignty and rights effects. This could then be followed by examination of the state policy development and administration process. This sequence could be modified to reflect a strong preference for input to a state policy

Research Topic	Resource Types: Analytical		Informational	
	Theory/Concepts	Methods	Political	Economic
I. Policy Impact				
A. Sovereignty				
1. Expenditure determination	mod*	mod	mod	mod
2. Wage/labor cost determination	high	mod	high	mod
3. Management control and autonomy	low	mod	low	mod
B. Rights of employees	low	mod	low	low
II. Policy description				
A. Policy structure	mod	low	high	high
B. Policy administration	mod	mod	low	mod
III. Impact Mechanism				
A. State level				
1. Policy development	mod	mod	mod	mod
2. Agency decisions	low	low	low	mod
B. Local process				
1. Cognitive structure	mod	mod	mod	mod
2. Policy/practice fit	high	high	mod	mod

* mod = moderate feasibility

Figure 7. Estimates of Research Feasibility in Terms of Resource Availability

determination process. In that case, examination of the state-level mechanism could precede examination of the local impact characteristics.

The second criterion is relative to development of resources. Thus some consideration should be given to those areas where the lack of development is greatest, such as management control and autonomy or agency decision-making processes.

Based on the application of these criteria, we conclude that the highest research priority should be given to policy description research, both in terms of structure and process, and to mechanisms of policy impact, particularly agency decisions and local processes. These studies can then form the base for continued and expanded research into the impacts themselves.

NOTES

1. Strictly speaking, the question involves a variety of different union activities, including, but not limited to formal bargaining. The specific types of activity are described in some of the subsequent sections. But this emerges as a major methodological issue for the overall review.

2. We will not attempt a detailed discussion of the theory underlying this approach. For excellent treatments see Frey (1975), Stiglitz (1976), and Reder (1975).

3. Impacts reported in this manner allow for easier comparisons across different salary levels and types of workers. Each percent of impact means that, on the average, each worker's wage is that proportion higher as a result of union activity, other things being equal. The review of wage impact literature prior to 1976 draws heavily on Perry (1976).

4. The monopsony power of a school district (or other employer) is the degree to which that employer is free of wage competition from other employers in the labor market. Total monopsony would occur when there is only one employer, or buyer, of labor, as total monopoly occurs when there is only one seller or source of supply. The greater the degree of monopsony, the less impact of collective bargaining would be expected, other things being equal.

5. Wages in a district without union activity may be influenced by bargaining in nearby districts. Part of the influence may be a "threat" effect; employers keeping wages high to avoid employee unrest and/or organizing activity. Part of the influence may be wage competition among employers. A simple comparison of salaries in bargaining with those in nearby non-bargaining districts could underestimate the overall impact of bargaining due to spillover effects.

6. Kochan's (1973) index assigns a numerical score according to the comprehensiveness of the statute. The index is based on the presence of absence of 12 categories of provisions. Cresswell et al. (1978) base their index on the degree to which the law favors bargaining. The classes of provisions are weighted to reflect this dimension of the statute.

7. The notion of "internal spillovers" includes both wage and non-wage effects. Chambers (1976) reports administrator salaries increasing with bargained increases for teachers. Ehrenberg and Goldstein (1975 found spillovers across types of municipal employees.

8. Final-offer arbitration is a general term for binding arbitration of contract disputes in which the arbitrator is bound to choose as the award one or the other of the parties' final or last best offers. In some forms the arbitrator chooses one side's total package of offers; in others the final offers may be separated by item. There are numerous variations in the details of the process as legislated in different states. See Feuille (1979) and Kochan (1979) for more details.

9. In reviewing the literature on the scope of bargaining and related issues, we have dealt primarily with empirical studies of impacts. There is a large legal literature dealing with changes in the law. We did not attempt to review legal developments per se. For detailed reviews of these matters see: GERR-RF 41:18-, 301-375 (1979); 41-170; 201-248 (1978); 41-152, 101-147 (1977); Foster (1978, 1979a, 1979b); Lawlor (1976); Tussey (1978).

10. States that do not have laws granting bargaining rights to K-12 teachers are: Alabama, Arizona, Arkansas, Colorado, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Ohio, Utah, Virginia, West Virginia and Wyoming. The supreme court has forbidden public employee bargaining in Virginia; in North Carolina there is a statutory prohibition prohibiting the state or its political subdivisions from signing contracts with unions; and Texas, too, forbids public employee collective bargaining contracts, although "consultation" is permitted. Teacher bargaining does occur in states without statutory permission, however. Such bargaining may occur as a result of case law, in the absence of statutory law either parmitting or prohibiting it, or in an ad hoc relationship.

11. Ross (1978) provides a similar information base on state bargaining laws and as a part of the project that includes this report, has extended the information base with a description, based on interviews, of how four very different states (New York, California, Minnesota and Kansas) implement and administer their bargaining laws at the state level. A summary of the four-state examination is included in Cuebook II (in print) and more detailed reports on each state operation will be available from the publisher, the Education Commission of the States, Denver, Colorado.

12. The main exception to this is the work of Kerchner et al. (1980) cited above. Since that research project is not complete, conclusions based on their preliminary findings must be considered quite tentative.

REFERENCES

Aaron, Benjamin; Grodin, Joseph R.; and Stern, James L. Public-Sector Bargaining. Washington, D.C.: Industrial Relations Research Association Series, BNA, 1979.

"AASA Model Public Employee Coopective Bargaining Law." American Association of School Administrators. Washington, D.C. : AASA, 1976.

Alexander, Arthur J. Teachers, Salaries, and School District Expenditures. Santa Monica, Calif.: RAND, 1974.

Anderson, John C. "Bargaining Outcomes: An IR System Approach." Industrial Relations 18:2 (Spring, 1979) 127-143.

Anderson, John C. and Kochan, Thomas A. "Impasse Procedures in the Canadian Federal Service: Effects on the Bargaining Process." Industrial and Labor Relations Review 30:3 (April, 1977) 283-301.

Ashenfelter, Orley and Ehrenbert, Ronald. "The Demand for Labor in the Public Sector" in Daniel Hamermesh, ed. Labor in the Public and Nonprofit Sectors. (Princeton, N.J.: Princeton University Press, 1975).

Averch, Harvey A., Carroll, Stephen J., Donaldson, Theodore S., Kiesling, Herbert J., and Pincus, John. How Effective Is Schooling? A Critical Review and Synthesis of Research Findings. Santa Monica, Calif.: RAND, 1972

Baderschneider, Jean. "The Impact of Collective Bargaining Laws Covering Police and Firefighters on Municipal Expenditure and Fiscal Strain." Industrial Relations Research Association, Proceedings of the Thirty-First Annual Meeting, 1978. Madison, Wisc.: IRRA, 1979.

Baird, Robert N. and Landon, Hohn H. "The Effects of Collective Barginiang on Public School Teachers' Salaries." Industrial and Labor Relations Review 25:3 (April, 1972) 410-417.

Baird, Robert N. and Landon, John. "Reply." Industrial and Labor Relations Review 28:4 (July, 1975) 576-577.

Balfour, G. Alan. "More Evidence that Unions Do Not Achieve Higher Salaries for Teachers." Journal of Collective Negotiations in the Public Sector 3:4 (FAll, 1974)

Barro, Stephen M. and Carroll, Stephen J. Budget Allocation by School Districts: An Analysis of Spending for Teachers and Other Resources. Santa Monica, Calif.: Rand, 1975 (R-1797-NIE).

Beale, Roger D. "The Australian Experience in Federal Sector Arbitration." Industrial Relations 14:3 (Oct, 1975) 318-326.

Belasco, James A. and Alu-to, Joseph A. "Organizational Impacts of Teacher Negotiations." Industrial Relations 9:1 (Oct, 1969) 67-79.

Benecki, Stanley. "Municipal Expenditure Levels and Collective Bargaining." Industrial Relations 17:2 (May, 1978) 216-230

Berman, Paul; McLaughlin, Milbrey W.: Bass, Gail; Pauly, Edward; and Zellman, Gail. Federal Programs Supporting Educational Change, Vol. VII: Factors Affecting Implementation and Continuation. Santa Monica, Calif.: Rand, 1977 (R-1589/7-HEW).

Bowles, Tim. "Defining the Scope of Bargaining for Teacher Negotiation: A Study of Judicial Approaches." Labor Law Journal 29:10 (Oct, 1978) 649-665.

Boyd, William L. "The Changing Politics of Curriculum Policy-making for American Schools." Review of Educational Research 48:4 (Fall, 1978) 577-628

Bridge, R. Gary; Judd, Charles M.; and Moock, Peter R. The Determinants of Educational Outcomes: The Impact of Families, Peers, Teachers, and Schools. Cambridge, Mass.: Ballinger, 1979.

Brown, Thomas A. "Have Collective Negotiations Increased Teachers' Salaries? A Comparison of Teachers' Salaries in States with and without Collective Bargaining Laws for Public School Personnel, 1961-1971." Journal of Collective Negotiations in the Public Sector 4:1 (1975) 53-65.

Brown, William W. and Stone, Courtenay C. "Academic Unions in Higher Education: Impacts on Faculty Salary, Compensation, and Promotions." Economic Inquiry 15:3 (July, 1977) 385-396.

Burton, John F. and Krider, Charles E. "The Incidence of Strikes in Public Employment." In Daniel S. Hamermesh, ed., Labor in the Public and Nonprofit Sectors. Princeton, N.J.: Princeton University Press, 1975

Caldwell, William E. "The Superintendent's Negotiation Role." Journal of Educational Research 64:2 (Oct, 1970) 73-77

Chambers, Jay G. "School District Behavior, Markets for Educational Resources, and the Implications for Public Policy: A Survey." Unpublished paper, University of Rochester, 1977.

Chambers, Jay G. "The Impact of Bargaining on the Earnings of Teachers: A Report on California and Missouri." A paper persented at the U.K.-U.S. Conference on Teacher Markets held at the University of Chicago in December, 1976.

Chambers, Jay G. "The Impact of Collective Bargaining for Teachers on Resource Allocation in Public School Districts: The California Experience." A paper presented at the meeting of the Southern Economic Association in New Orleans, Novermber, 1975.

Cheng, Charles W. "Community Participation in Teacher Collective Bargaining: Problems and Prospects." Harvard Educational Review 46:2 (May, 1976) 153-174.

Cohen, Sanford. "Does Public Employee Unionism Diminish Democracy?" Industrial and Labor Relations Review 32:2 (Jan., 1979) 189-195

Cole, Steven. "Teachers' Strikes: A Study of the Conversion of Predispositions in Action." American Journal of Sociology 24:5 (March, 1969) 506-520.

Colton, David. "Collective Bargaining Laws and Teacher Strikes." Journal of Collective Negotiations in the Public Sector 7:3 (1978) 201-212.

Colton, David L. and Graber, Edith E. "Managerial Response to Teacher Strikes: Organizational and Political Perspectives." Paper at the American Educational Research Association's Annual Meeting, 1980.

Cook, Robert F. and Doering, Barbara W. "Negotiating a Teacher's Contract: A Time Commitment for Bilateralism." Arbitration Journal 32:3 (Sept, 1977) 145-179.

Cooper, Bruce S. and Bussey, John C. "Collective Bargaining in Public Education and Other Sectors: A Comparative Review of Research." Hanover, New Hampshire: Department of Education, Dartmouth College, April 1, 1980 (mimeo).

Corwin, Ronald. Militant Professionalism. New York: Appleton-Century-Crofts, 1970.

Cresswell, Anthony M., Juris, Harvey A., Nathanson, Leslie, and Tooredman, Kathryn. "Impacting State Labor Relations and School Finance Policies on Educational Resource Allocation." A paper presented at the American Educational Research Association Annual Meeting, 1978.

Cresswell, Anthony M. and Florio, David. "Labor Relations Policy for Public Schools in Illinois: A Position Paper." A Symposium on Education and Collective Bargaining in Illinois, Northwestern University (1977) 14-50.

Cresswell, Anthony M., Juris, Harvey A., Tooredman, Kathryn, and Zacharias, Margaret. "Budgeting and Bragaining Interactions in School Districts." A paper presented at the American Educational Research Association Annual Meeting, 1979.

Cresswell, Anthony M.; Murphy, Michael J.; and Kerchner, Charles T. Teachers, Unions, and Collective Bargaining in Education. Berkeley, Calif.: McCutchan, 1980.

Cresswell, Anthony M. and Simpson, Daniel. "Collective Bargaining and Conflict: Impacts on School Governance." Educational Administration Quarterly 13:3 (Feb, 1977) 49-69.

Danziger, James N. Making Budgets. Beverly Hills, Calif.: Sage Publications, 1978.

Derber, Milton. "Management Organization for Collective Bargaining in the Public Sector." In Benjamin Asron et al., eds., Public-Sector Bargaining. Washington, D.C.: BNA, 1979.

Derber, Milton; Jennings, Ken; McAndrew, Ian; and Wagner, Martin. "Bargaining and Budget-Making in Illinois Public Institutions." Industrial and Labor Relations Review 27:1 (October, 1973) 49-63.

Derber, Milton and Wagner, Martin. "Public Sector Bargaining and Budget Making Under Fiscal Adversity." Industrial and Labor Relations Review 33:1 (October, 1979) 18-23.

Doherty, Robert. "The Effect of Collective Bargaining on the Quality of Education." Paper presented at the Conference on the Impact of Collective Bargaining on the Quality of Education Today, University of Massachusetts-Amherst, 1979.

Doherty, Robert E. and Gallo, Mary E. Compulsory Interest Arbitration in New York State--Experience Under the 1977 Amendments. Ithaca, N.Y.: New York State School of Industrial and Labor Relations, Cornell University, 1979. (mimeo)

Donn, Clifford B. "Games Final-Offer Arbitrators Might Play." Industrial Relations 16:3 (Oct, 1977) 306-314.

Downs, Anthony. An Economic Theory of Democracy. New York: Harper and Bros., 1957.

Drotning, John E., and Lipsky, David B. "The Outcome of Impasse Procedures in New York Schools Under the Taylor Law." The Arbitration Journal 26:2 (April, 1971) 87-102.

Dunlop, John E. "Should Methods to Deal With Student Discipline Be Negotiated with Teacher Organizations? The NEA Perspective." Journal of Law and Education 6:1 (Jan, 1977) 75-87.

Edwards, Harry T. "The Emerging Duty to Bargain in the Public Sector." Michigan Law Review 71:5 (April, 1973) 885-934.

Ehrenberg, Ronald. "The Demand for State and Local Government Employees." American Economic Review 63: (June, 1973) 366-379.

Ehrenberg, Ronald G. and Goldstein, Gerald S. "A Model of Public Sector Wage Determination." Journal of Urban Economics 2 (July, 1975) 223-245.

Eisenhammer, Stanley B. and Trizna, Robert J. "The Permissible Scope of Public Sector Bargaining in Illinois: A Proposed Solution." John Marshall Journal of Practice and Procedure 12:3 (Spring, 1979) 509-536.

Englander, William H. "The Liverpool Decision and Public Sector Arbitration: A Question of Nondelegable Responsibilities." Arbitration Journal 33:2 (June, 1978) 25-28.

Englert, Richard M. "Third-Party Participation in the 1978 Teacher Negotiations in Philadelphia: The Politics of Bargaining." Paper presented at the American Educational Reserach Association's Annual Meeting, 1979.

Farber, Harry S. and Katz, Harry C. "Interest Arbitration, Outcomes, and the Incentive to Bargain." Industrial and Labor Relations Review 33:1 (Oct, 1979) 55-63.

Feeley, Malcolm. "Approaches to the Study of Collective Bargaining Impact." Schools and the Courts, Vol. II. Eugene. Oregon: ERIC, University of Oregon (1979), 1-23.

Feuille, Peter and Dworkin, James B. "Final Offer Arbitration and Intertemporal Compromise, or It's My Turn to Win." Industrial Relations Research Association, Proceedings of the Thirty-First Annual Meeting, 1978. Madison, Wisc.: IRRA, 1979.

Feuille, Peter. "Selected Benefits and Costs of Compulsory Arbitration." Industrial and Labor Relations Review 33:1 (Oct, 1979) 64-76.

Feuille, Peter; Jaris, Hervey; Jones, Ralph; and Jedel, Michael J. "Multiemployer Bargaining Among Local Governments." Industrial Relations Research Association, Proceedings of the Twenty-Ninth Annual Winter Meeting, 1976. Madison, Wisc.: IRRA, 1977.

Feuille, Peter. "Public Sector Impasses: Symposium Introduction." Industrial Relations 16:3 (Oct, 1977) 264-272. (B)

Feuille, Peter. "Final Offer Arbitration and the Chilling Effect." Industrial Relations 14:3 (Oct, 1975) 302-310.

Feuille, Peter. "Final Offer Arbitration and Negotiating Incentives." Arbitration Journal 32:3 (Sept, 1977) 203-220. (A)

Feuille, Peter. "Public Sector Impasses: Symposium Introduction - Reply." Industrial Relations 17:2 (May, 1978) 255-257. (B)

Flango, Victor E. "The Impact of Collective Negotiations on Educational Policies." Journal of Collective Negotiations in the Public Sector 5:2 (1976) 133-155.

Fogel, Walter and Lewin, David. "Wage Determination in the Public Sector." Industrial and Labor Relations Review 27:3 (April, 1974) 410-431.

Foster, Wayne F. "Damage Liability of State or Local Public Employees' Union or Union Officials for Unlawful Work Stoppage." 84 ALR 3d 336-342 (1978)

Foster, Wayne F. "Union Security Arrangements in State Public Employment" 95 ALR 3d 1102-1125 (1979)

Foster, Wayne F. "Who Are Supervisors for Purposes of Bargaining-Unit Determinations in State Public Employment Labor Relations." 96 ALR 3d 723-734 (1979b).

Freund, James L. "Market and Union Influences on Municipal Employee Wages." Industrial and Labor Relations Review 27:3 (April, 1974) 391-404.

Frey, Donald E. "Wage Determination in Public Schools and the Effects of Unionization" in Daniel S. Hamermesh, ed. Labor in the Public and Nonprofit Sectors. (Princeton, N.J.: Princeton Universtity Press, 1975, pp. 183-219).

Gallagher, Daniel G. "DeFacto Bargaining and Teacher Salary Levels: The Illinois Experience." Journal of Collective Negotiations in the Public Sector 7:3 (1978) 243-254.

Gallagher, Daniel G. "Interest Arbitration Under the Iowa Public Employment Relations Act." Arbitration Journal 33:3 (Sept, 1978) 30-36.

Gallagher, Daniel G. "Teacher Negotiations, School District Expenditures, and Taxation Levels." Educational Administration Quarterly 15:1 (Winter, 1979) 67-82.

Gallagher, Daniel G. and Pegnetter, Richard. "Impasse Resolution Under the Iowa Multistep Procedure." Industrial and Labor Review 32:3 (April, 1979) 327-338.

Geiger, Martha. "Right to Strike and the Rodda Act: A Shift in Bargaining Power." Pacific Law Journal 10:2 (July, 1979) 971-990.

Gerhart, Paul F. "Determinants of Bargaining Outcomes in Local Government Labor Negotiations." Industrial and Labor Relations Review 29:3 (April, 1976) 331-351.

Gerwin, Donald. "An Information Processing Model of Salary Determination in a Contour of Suburban School Districts." American Education Research Journal 10:1 (Winter, 1970) 5-20.

Glassman, Alan M. and Belasco, James A. "The Chapter Chairman and School Grievances." Industrial Relations 14:2 (May, 1975) 234-241.

Goldberg, Albert J. and Harbatken, Lisa. "The Teachers Union Chapter in the Elementary School." Teachers College Record 71:4 (May, 1970) 647-654.

Government Employee Relations Report. "Special Report: Teachers and Labor Relations, 1976-1977." 41 GERR-RF 152, 101-147 (Nov. 21, 1977).

Government Employee Relations REport. "Special Report: Teachers and Labor Relations, 1977-1978." 41 GEER-RF 170, 201-248 (November 27, 1978).

Government Employee Relations Report. "Sp-cial Report: Teachers and Lab- Relations, 1978-1979." 41 GERR-RF 184, 301-375 (Nov. 26, 1979).

Graber, Edith and Colton, David. "The Limits of Effective Legal Action: The Use of the Labor Injunction in Teacher Strikes." Paper presented at the Annual Meeting of the Law and Soceity Association, Madison, Wisconsin, 1980.

Graham, Larry A. "Means to An End: Collective Bargaining and Teacher Benefits." Viewpoints 52:6 (Nov, 1976) 7-19.

Gray, David A. and Dyson, B. Patricia. "Impact of Strike Remedies in Public Sector Collective Bargaining." Journal of Collective Negotiations in the Public Sector 5:2 (1976) 125-132.

Grumm, John G. "The Analysis of Policy Impact." In Fred I. Greenstein and Nelson W. Polsby, Handbook of Political Science, Vol. 6. Reading, Mass.: Addison-Wesley, 1975.

Gustman, Alan L. and Clement, M. O. "Teachers Salary Differentials and Equality of Educational Opportunity." Industrial and Labor Relations Review 31:1 (October, 1977) 61-70.

Gustman, Alan L. and Segal, Martin. "Interstate Variations in Teachers Pensions." Industrial Relations 16:3 (October, 1977) 335-344.

Gustman, Alan L. and Segal, Martin. "Teachers Salary Structures - Some Analytical and Empirical Aspects of the Impact of Collective Bargaining." Industrial Relations Research Association's Proceedings of the Thirtieth Annual Meeting, 1977. Madison, Wisc.: IRRA, 1978.

Hall, Richard. Organizations: Structure and Process. Englewood Cliffs, N.J.: Prentice-Hall, 1977.

Hall, W. Clayton and Carroll, Norman E. "The Effect of Teachers' Organizations on Salaries and Class Size." Industrial and Labor Relations Review 26:2 (Jan., 1973) 834-841.

Harter, Lafayette G. J. "Tenure and the Non-Renewal of Probationary Teachers." Arbitration Journal 34:1 (March, 1979) 22-27.

Hayford, Stephen L. and Sinicropi, Anthony V. "Bargaining Rights of Public Sector Supervisors." Industrial Relations 15:1 (Feb., 1976) 44-61.

Heilriegel, Donald, French, Wendell, and Peterson, Richard B. "Collective Negotiations and Teachers: A Behavioral Analysis." In Anthony M. Cresswell and Michael J. Murphy, eds., Education and Collective Bargaining. Berkeley, Calif.: McCutchan, 1976.

Heshizer, Brian P. and Graham, Harry. "Advisory Arbitration: The Experience in Illinois." Journal of Collective Negotiations in the Public Sector 7:3 (1978) 225-241.

Holden, Lawrence T., Jr. "Final-Offer Arbitration in Massachusetts: One Year Later." Arbitration Journal 31:1 (Mar, 1976) 26-35.

Holley, William H. et al. "Perceptions of the Role of the Principal in Professional Negotiations." Journal of Collective Negotiations in the Public Sector 5:4 (1976) 361-369.

Holmes, Alexander B. "Effects of Union Activity on Teachers' Earnings." Industrial Relations 15:3 (Oct, 1976) 328-332.

Holmes, Alexander B. "Union Activity and Teacher Salary Structure." Industrial Relations 18:1 (Winter, 1979) 79-85.

Holmes, M. "The Effects of Teachers' Strikes on Students: The Effects on Student Grades." Paper presented at the American Educational Research Association Annual Meeting, 1978.

Horton, Raymond D.; Lewin, David; and Kuhn, James W. "Some Impacts of Collective Bargaining in Local Government: A Diversity Thesis." Administration and Society 7: (Feb, 1976) 497-516.

Humes, Charles W. and Kennedy, Thomas F. "The Counselor's Role in Collective Negotiations." Personnel and Guidance Journal 48:6 (February 1970) 449-457.

Ichniowski, Casey. "Economic Effects of the Firefighters' Union." Industrial and Labor Relations Review 33:2 (Jan., 1980) 198-211.

James, H. Thomas, Kelly, James A., and Garms, Walter I. The Determinants of Educational Expenditures in Large Cities of the United States. Stanford, Calif.: School of Education, Stanford University, 1966.

James, Tom. "The States Struggle to Define Scope of Teacher Bargaining." Phi Delta Kappan, 57:2 (Oct, 1976) 94-97.

Kasper, Herschel. "On the Effect of Collective Bargaining on Resource Allocation in Public Schools." Economic and Business Bulletin 23:3 (Jan, 1973) 834-841.

Kasper, Herschel. "The Effects of Collective Bargaining on Public School Teachers' Salaries." Industrial and Labor Relations Review 24:1 (October, 1970) 57-62.

Katz, Harry C. "The Municipal Budgetary Response to Changing Labor Costs: The Case of San Francisco." Industrial and Labor Relations Review 32:4 (July, 1979) 506-519.

Kerchner, Charles T. "From Scope to Scope: The Genetic Mutation of the School Control Issue." Educational Administration Quarterly 14:1 (Winter, 1978) 64-79.

Kerchner, Charles T. "The Process Costs of Collective Bargaining in California School Districts." Journal of Collective Negotiations in the Public Sector 8:1 (1979) 39-51.

King, Richard A. "Final-Offer Arbitration and Teacher Contract Bargaining." Journal of Collective Negotiations in the Public Sector 7:4 (1978) 299-305.

King, Richard A. "Toward a Theory of Wage Determination for Teachers: Factors Which Determine Variation in Salaries Among Districts." Journal of Educational Finance 4: (Winter, 1979) 358-369.

Kirst, Michael W. "After School Finance Reform: What Will Low Wealth School Districts Do with Unrestricted State Aid?" Stanford, Calif.: School of Education, Stanford University 1975 (mimeo).

Klauser, Jack E. "Public Sector Impasse Resolution in Hawaii." Industrial Relations 16:3 (Oct, 1977) 283-289.

Kochan, Thomas A. "Correlates of State Public Employee Bargaining Laws." Industrial Relations 12:3 (October, 1973) 322-337.

Kochan, Thomas A. "Theory, Policy Evaluation, and Methodology in Collective Bargaining Research." Industrial Relations Research Association, Proceedings of the Twenty-Ninth Annual Winter Meeting, 1976. Madison, Wisconsin: IRRA, 1977.

Kochan, Thomas A. "The Politics of Interest Arbitration." Arbitration Journal 33:1 (March, 1978) 5-9.

Kochan, Thomas A. "Theory, Policy Evaluation, and Methodology in Collective Bargaining Research." Industrial Relations Research Association's Proceedings of the Thirtieth Annual Meeting, 1977. Madison, Wisc.: IRRA, 1978.

Kochan, Thomas A. "Dynamics of Dispute Resolution in the Public Sector." In Benjamin Aaron et al., eds., Public Sector Bargaining. Washington, D.C.: BNA 1979.

Kochan, Thomas A. and Baderschneider, Jean. "Dependence on Impasse Procedures: Police and Firefighters in New York State." Industrial and Labor Relations Review. 31:4 (July, 1978) 431.

Kochan, Thomas A.; Ehrenberg, Ronadl G.; Baderschneider, Jean; Jick, Todd; and Mironi, Mordehai. An Evaluation of Impasse Procedures for Police and Firefighters in New York State. Ithaca, N.Y.: Cornell University, New York State School of Industrial and Labor Relations, 1977.

Kochan, Thomas A. and Wheeler, Hoyt N. "Municipal Collective Bargaining: A Model and Analysis of Bargaining Outcomes." Industrial and Labor Relations Review 29:1 (Oct, 1975) 46-66.

Lawlor, James D. "Validity and Construction of Statutes or Ordinances Providing for Arbitration of Labor Disputes Involving Public Employees." 68 ALR 3d 885-958 (1976).

Leslie, Larry L. and Hu, Teh-Wei. "Financial Implications of Collective Bargaining." Journal of Educational Finance 3:1 (Summer, 1977) 32-53.

Lewin, David. "Public Sector Labor Relations." Labor History 18:1 (Winter, 1977) 133-144.

Lipsky, David P. and Barocci, Thomas A. "Final Offer Arbitration and Public Safety Employees: The Massachusetts Experience." Industrial Relations Research Association, Proceedings of the 30th Annual Winter Meeting, 1977. Madison, Wisc.: IRRA, 1978.

Lipsky, David B. and Drotning, John E. "The Influence of Collective Bargaining on Teachers' Salaries in New York State." Industrial and Labor Relations Review 27:1 (October, 1973) 18-35.

Lipsky, David B. and Drotning, John E. "The Relation Between Teachers Salaries and the Use of Impasse Procedures Under New York's Taylor Law: 1968-1972." Journal of Collective Negotiations in the Public Sector 6:3 (1977) 229-244.

Long, Gary and Feuille, Peter. "Final-Offer Arbitration: 'Sudden Death' in Eugene." Industrial and Labor Relations Review 27:2 (Jan, 1974) 186-203.

Lortie, Dan C. School-Teacher: A Sociological Study. Chicago: University of Chicago Press, 1975.

Mann, Dale. Policy Decision-Making in Education. New York: Columbia University, Teachers College Press, 1975.

Metzler, John H. and Gerrard, Stanley C. "Should Methods to Deal with Student Discipline Be Negotiated with Teacher Organizations? A Management Perspective." Journal of Law and Education 6:1 (Jan, 1977) 65-73.

Milstein, Mike. Impact and Response: Federal Aid and State Education Agencies. New York: Columbia University, Teachers College Press, 1976.

Mintzberg, Henry. The Structuring of Organizations. Englewood Cliffs, N.J.: Prentice-Hall, 1979.

Mitchell, Daniel J. B. "The Impact of Collective Bargaining on Compensation in the Public Sector." In Benjamin Aaron et al., eds., Public Sector Bargaining. Washington, D.C.: BNA, 1979.

Mitchell, Douglas E. "The Impact of Collective Bargaining on Public and Client Interests in Education." RIE (Apr, 1976).

Moore, Gary A. "More Evidence that Unions Do Not Achieve Higher Salaries for Teachers: Comment." Journal of Collective Negotiations in the Public Sector 4:3 (1975) 253-256.

Moore, Gary A. "The Effect of Collective Bargaining on Internal Salary Structures in the Public Schools." Industrial and Labor Relations Review 29:3 (April, 1976) 352-362.

Morgan, David R. and Kearney, Richard C. "Collective Bargaining and Faculty Compensation: A Comparative Analysis." Sociology of Education 50:1 (Jan, 1977) 28-39.

Moynihan, Daniel P. "Equalizing Education - in Whose Benefit?" The Public Interest 29 (Fall, 1972) 69-89.

Munro, Robert. "The Scope of Collective Bargaining and Arbitration for Tenure of Public School Teachers." NOLPE Law Journal 8:1 (1978) 25-39.

McDonnel, Lorraine and Pascal, Anthony. Organized Teachers in American Schools. Santa Monica, California: RAND, 1979.

Nelson, Nels S. "Public Policy and Union Security in the Public Sector." Journal of Collective Negotiations in the Public Sector 7:2 (1978) 87-102.

Notz, William W. and Starke, Fredrick A. "Final Offer Versus Conventional Arbitration as a Means of Conflict Management." Administrative Science Quarterly 23:3 (June, 1978) 189-203.

O'Brien, Gavin W. "Collective Bargaining: An Educational Technology." RIE (March, 1976).

Olson, Craig A. "Final-Offer Arbitration in Wisconsin After Five Years." Industrial Relations Research Association, Proceedings of the Thirty-First Annual Meeting. Madison, Wisc.: IRRA, 1978.

Osterman, Elaine P. "The Discipline of Public Employees: The New York State Experience." Arbitration Journal 34:3 (Sept, 1979) 25-33.

Pegnetter, Richard. "Fact Finding and Teacher Salary Disputes: The 1969 Experience in New York State." Industrial and Labor Relations Review 24: (Jan, 1971) 226-242.

Perry, Charles R. "Teacher Bargaining: The Experience in Nine Systems." Industrial and Labor Relations Review 33:1 (October, 1979) 3-17.

Perry, Charles R. and Wildman, Wesley A. The Impact of Negotiations in Public Education: The Evidence from the Schools. Worthington, Ohio: Jones, 1970.

Perry, James L. "Public Policy and Public Employee Strikes." Industrial Relations 16:3 (Oct, 1977) 273-282.

Perry, Wayne D. Collective Bargaining by Teachers: Issues and Evidence. Santa Monica, Calif.: Rand Corp., 1976. (p. 5934)

Peterson, Paul. School Politics: Chicago Style. Chicago: University of Chicago Press, 1976.

Peterson, Richard B. "A Cross-Cultural Study of Secondary School Teachers' Attitudes Regarding Job Satisfaction, Professionalism, and Collective Negotiations." Journal of Collective Negotiations in the Public Sector, 5:2 (1976) 113-124.

Pfeffer, Jeffrey. "Power and Resource Allocation in Organizations." In Barry M. Staw and Gerald R. Salancik, eds., New Directions in Organizationsl Behavior. Chicago: St. Clair Press, 1977.

Pfeffer, Jeffrey and Salancik, Gerald R. "Organizational Decision making as a Political Process: The Case of a University Budget." Administrative Science Quarterly 19:2 (June, 1974) 135-151.

Pierce, Lawrence C. "The Effects of Collective Bargaining on Classroom Time Allocation and Student Achievement." A paper presented at the American Educational Research Association Annual Meeting, 1980.

Public Service Research Council. Public Sector Bargaining and Strikes. 2nd ed. Vienna, Va.: PSRC, 1976.

Reder, Melvin W. "The Theory of Employment and Wages in the Public Sector." In Daniel S. Hamermesh, ed., Labor in the Public and Nonprofit Sectors. Princeton, N.J.: Princeton University Press, 1975.

Reed, Donald B. and Mitchell, Douglas E. "The Structure of Citizen Participation: Public Decisions for Public Schools." In Douglas E. Mitchell and Shelly Weinstein, eds., Public Testimony on Public Schools. Berkeley, Calif.: McCutchan, 1976.

Rehfuss, John. "The Public Sector Bargaining Unit: Thoughts Raised by the Literature and the Illinois Experience." Journal of Collective Negotiations in the Public Sector 7:1 (1978) 45-60.

Rhemus, Charles M. and Wilner, Evan. The Economic Results of Teacher Bargaining: Michigan's First Two Years. Ann Arbor: Institute of Labor and Industrial Relations, University of Michigan, 1965.

Rogers, David. 110 Livingston Street. New York: Random House, 1968.

Ross, Doris. Cuebook: State Education Collective Bargaining Laws, Report No. F78-9. Education Commission of the States, Denver, Colorado (October 1978) 62 pp.

Rubin, Jeffrey Z. and Brown, Bert R. The Social Psychology of Bargaining and Negotiation. New York: Academic Press, 1975.

Sarason, Seymour, Cheng, Charles, Cowden, Peter, Davies, Don, Lorentz, Elizabeth M., Mason, Kenneth, and Reppucci, N. Dickon. The Community at the Bargaining Table. Boston, Mass.: Institute for Responsive Education, 1975.

Schmenner, Roger W. "The Determinants of Municipal Employee Wages." Review of Economics and Statistics 55:1 (Feb., 1973) 83-90.

Schneider, Barbara L. "Production Analysis of Gains in Achievement." A paper presented at the American Educational Research Association Annual Meeting, 1980.

Sexton, Michael; Fox, Milden J., Jr.; and Potter, Danny R. "The Scope of Teacher Collective Bargaining." Journal of Collective Negotiations in the Public Sector 7:2 (1978) 145-166.

Shaw, Lee C. and Clark, R. Theodore, Jr. "The Practical Difference Between Public and Private Sector Collective Bargaining." UCLA Law Review 19: (Aug., 1972) 867-886.

Silbiger, Sara L. Implementing Union Contracts in New York City Education. New York: Public Education Association/United Parents Association's Task Force on Collective Bargaining, 1979.

Smith, David. "Professional Negotiations: What's Negotiable?" National Elementary School Principal 53: (Mar-Apr, 1974) 73-75.

Somers, Paul C. "An Evaluation of Final-Offer Arbitration in Massachusetts." Journal of Collective Negotiations in the Public Sector 6:3 (1977) 193-224.

Staudohar, Paul D. "The Grievance Arbitration and No-Strike Model in Public Employment." Arbitration Journal 31:2 (June, 1976) 116-124.

Stern, James L., Rhemus, Charles M., Loewenberg, J. Joseph, Kasper, Herschel, and Dennis, Barbara D. Final Offer Arbitration. Lexington, Mass.: D. C. Heath, 1975.

Stern, Robert N. "Methodological Issues in Quantitative Strike Analysis." Industrial Relations 17:1 (Feb, 1978) 32-42.

Stevens, William L. "Arbitrability and the Illinois Courts." Arbitration Journal 31:1 (Mar, 1976) 1-25.

Stiglitz, Charlotte K. Wage Determination for Teachers and The Demand for Educational Expenditures. Springfield, Va.: National Technical Information Service (PB 267 098), 1976.

Straussman, Jeffrey D. and Rodgers, Robert. "Public Sector Unionism and Tax Burdens: Are They Related?" Policy Studies Journal 8:3 (Winter, 1979) 438-448.

Strom, David. "Teacher Unionism: An Assessment." Education and Urban Society 11:2 (Feb, 1979) 152-167

Subbarao, A. V. "Impasse Choice and Wages in the Canadian Federal Service." Industrial Relations 18:2 (Spring, 1979) 233-243.

Sulzner, George T. "The Political Functions of Impasse Procedures." Industrial Relations 16:3 (Oct, 1977) 290-297.

Summers, Clyde W. "Public Employee Bargaining: A Political Perspective." Yale Law Journal 83: (May, 1974) 1156-1200.

Thornton, Robert J. "Monopsony and Teachers Salaries: Some Contrary Evidence." Industrial and Labor Relations Review 28:4 (July, 1975) 574-575.

Thornton, Robert J. "The Effects of Collective Negotiations on Teachers' Salaries." Quarterly Review of Economics and Business 11:4 (Winter, 1971) 37-46.

Thornton, Robert J. "The Elasticity of Demand for Public School Teachers." Industrial Relations 18:1 (Winter, 1979) 86-91.

Thornton, Robert J. and Weintraub, Andrew. "Public Employee Bargaining Laws and the Propensity to Strike." Journal of Collective Negotiations in the Public Sector. 3: (Winter, 1974) 33-40.

Tussey, Deborah. "Bargainable or Negotiable Issues in State Public Employment Labor Relations." 84 ALR 3d 242-313 (1978). (American Law Reports)

Van Maanen, John. "Reclaiming Qualitative Methods for Organizational Research: A Preface." Administrative Science Quarterly 24:4 (Dec., 1979) 520-526.

Van Meter, Donald S. and Van Horn, Carl E. "The Policy Implementation Process." Administration and Society 6:4 (Feb, 1975) 445-485.

Weber, Arnold. "Paradise Lost: Or Whatever Happened to the Chicago Social Workers?" Industrial and Labor Relations Review 23: (April, 1969) 323-338.

Weitzman, Joan. The Scope of Bargaining in Public Employment. New York: Praeger Publishers, 1975.

Weitzman, Joan and Stochaj, John M. "Attitudes of Arbitrators Toward Final-Offer Arbitration in New Jersey." Abritration Journal 35:1 (March, 1980) 25-40.

Wheeler, Hoyt N. "Compulsory Arbitration: A 'Narcotic Effect'?" Industrial Relations 14:1 (Feb, 1975) 117-120.

Wheeler, Hoyt N. "Closed-Offer: Alternative to Final-Offer Selection." Industrial Relations 16:3 (Oct, 1977) 298-305.

Wheeler, Hoyt N. "How Compulsory Arbitration Affects Compromise Activity." Industrial Relations 17:1 (Feb, 1978) 80-84. (A)

Wheeler, Hoyt N. "Public Sector Impasses: Symposium Introduction-Comment." Industrial Relations 17:2 (May, 1978) 252-254. (C)

Wildman, Wesley. "A Public Sector Bargining Law for Illinois." A Symposium on Education in Collective Bargaining in Illinois, Northwestern University, 1971, 50-80.

Williams, Alaine S. "Alternatives to the Right to Strike for Public Employees: Do They Adequately Implement Florida's Constitutional Right to Collectively Bargain?" Florida State Law Review. 7:3 (Summer, 1979) 475-504.

Wilson, Stephen. "The Use of Ethnographic Techniques in Educational Research." Review of Educational Research 47:1 (Winter, 1977) 345-265.

Winkler, Donald R. "The Effects of Sick-Leave Policy on Teacher Absenteeism." Industrial and Labor Relations Review 33:2 (Jan., 1980) 232-240.

Wolcott, H. The Man in the Principal's Office. New York: Holt, Rinehart, Winston, 1973.

Wolkinson, Benjamin W. and Stieber, Jack. "Michigan Fact-Finding Experience in Public Sector Disputes." Arbitration Journal 31:4 (Dec, 1976) 225-247.

Zirkel, Perry A. "Teacher-Board Relations in Connecticut: A Summary of the Law Regarding Scope of Negotiations, Good Faith Bargaining, and Unfair Labor Practices." Preliminary Draft. RIE (Sept, 1975).

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